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CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society Of America

Vol. XXV JULY-AUG., 1953 No. 4

FIG. 71. A hillside planting of *Trichocereus* and *Cereus* in the University of California Botanical Garden, Berkeley, California.

CACTUS AND SUCCULENT JOURNAL

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Vol. XXV JULY-AUGUST, 1953 (PRICE 50c) No. 4

The Succulent Collection of hte University of California Botanical Garden
Myron Kimnach and P. C. Hutchison 95
Cactus Pictures, No. 1 of a Series ... Edwin F. Wiegand 105
Cactus in Manhattan ... Paula Peck 106
Cereusly Speaking ... John E. C. Rodgers 107
A Cactus Collector in the Andes, Part VI ... Harry Johnson 108
The Catalogues of Blanc & Co. ... 110
More About Mexico ... Howard E. Gates 112
The Bishop's Cap Cactus ... Wm. Mastrangel 113
Dudleya brittonii ... 115
Highlights of the History of the Cactus and Succulent Society of America, 1929-1943 ... Carl F. Brassfield 116
James West ... 118
Griffith's Opuntia Collection ... 120
New Bi-generic Hybrid ... T. MacDougall 121
Spine Chats ... Ladislaus Cutak 123

PRIVATE COLLECTIONS OF CENTRAL CALIFORNIA

In the San Francisco Bay area is a comparatively large concentration of privately-owned succulent collections, most of whose owners are members of the Cactus and Succulent Society of California, which meets in Oakland. A complete listing of these collections can be found in Dr. Berry's "Cactus and Succulent Directory" published in 1950. Several of the larger collections are being described below in more detail, however, for the benefit of Convention visitors passing through this area who may wish to visit them.

Dr. M. W. Morgan, 5313 Rosalind Ave., Richmond. In rarity and size of plants Dr. Morgan's is considered one of the finest private collections in this country. Most valuable are the two Welwitschias raised by him from seed some 25 years ago; besides a very comprehensive collection of cactus crests, one may also see huge imported specimens of *Cissus, Pachypodium, Adenium, Jatropha, Euphorbia,* and *Mammillaria.* Also of note are numerous fine hybrids originated by Dr. Morgan, especially of *Crassula.*

Al Irving, 2163 Alameda Ave., Alameda. Specializing in South African succulents, Mr. Irving has done much importing and now probably has the best private general collections of these plants in the area. Especially well-represented are *Lithops,* of which he has nearly all species, raised from seed by himself. Numerous Adromischus, Haworthias and Stapeliads may also be seen.

J. W. Dodson, 721 Edgewood Rd., Redwood City. Haworthia collectors will be interested in seeing what is without doubt the largest collection of these plants outside of Africa. The great majority have been imported by Mr. Dodson, who is a serious student of this genus and who formerly edited and published the "Haworthia Review."

R. E. Flores, 905 El Camino Real N., Salinas (7½ miles north of the city). Because Mr. Flores lived for awhile in Mexico and has since done much collecting in that country, it is inevitable that his collection is concentrated on Mexican cacti. Besides several glasshouses devoted to succulents, of which Mammillarias, Ferocacti and Astrophytums are most prominent, many of his best plants are located outdoors. Most of these are grafted on *Trichocereus* stock which is planted in rows and irrigated.

D. R. Small, 926 Douglas Dr., San Leandro. One of the specialties of this collection is *Echeveria,* the colorful hybrids being especially fine. This collector has been very successful in propagating his plants from leaves. Inside the greenhouse is a large collection of particularly well-grown cacti and other succulents.

M. J. Cann, 7740 MacArthur Blvd., Oakland. Representative of the general all-around collection, a wide variety of plants can be seen here. Mr. Cann is very skilled in grafting, and has worked out some unorthodox but highly successful methods.

Nearly all the above collectors sell their surplus plants, and some raise large quantities of seedlings for this purpose. Several of the collections are so outstanding among others in the country that future articles will be devoted to them or to some of their most interesting plants. In case Convention visitors doubt their ability to find these addresses it is recommended that they first visit the Botanical Garden at the University of California (Berkeley) where someone will be available to give them more detailed directions to the collections they wish to see, or to furnish them with a guide from our local cactus society.

MAY MEETING REPORT OF COLORADO CACTOPHILES

Meeting held Tuesday, May 12, at the "Cactus Shack" home of Mr. and Mrs. Conrad Eckstein. The newly arrived Convention program and data was thoroughly and enthusiastically discussed and Mrs. William Rutschman was elected as the official delegate.

Mr. G. J. Tomlin showed slides of Reel 9 in the View Master Succulent Plants series, which included: *Oreocereus fossulatus, Cleistocactus smaragidiflorus, Myrtillocactus geometrizans, Hylocereus undatus, Selenicereus pteranthus, Aporocactus flagelliformis,* and *Echinocereus rosei.* These are classified under TRIBE III—CEREEAE as:

SUB-TRIBE I—CEREANAE which includes 44 genera of tree or bush-like plants, only 16 of which are common in collections.

SUB-TRIBE II—HYLOCEREANAE, containing 9 genera of climbing plants. They are all tree-dwellers and equipped with air roots by which they anchor themselves to trees and absorb food from leaf mold in tree crotches and water from the frequent tropical rains of their habitat. *Hylocereus* and *Selenicereus* produce the largest and showiest of all cactus flowers.

ELIZABETH ECKSTEIN, *Affiliate Reporter*

Golden-spined *Echinocactus grusonii* Hildmann, dominate the landscape.

THE SUCCULENT COLLECTION OF THE UNIVERSITY OF CALIFORNIA BOTANICAL GARDEN*

By MYRON KIMNACH *and* P. C. HUTCHISON

Located in a typical canyon of the coast range of central California, a mile east of the campus at Berkeley, this Botanical Garden is generally considered to have one of the most beautiful settings of any similar institution in the world. Since its establishment there in 1928 its developed areas have gradually spread over the surrounding hills and ravines, providing a favorable environment for a variety of specialized plant collections. Of those encountered among the trees, creeks, ponds and slopes of the Garden is one of the largest collections of species Rhododendrons in this country, an herb garden, an extensive planting of species roses, a South American collection, a variety of South African heathers and bulbs, and, under glass, large collections of ferns, aroids, pelargoniums and orchids.

One of the major units consists of a collection of cacti and other succulents grown in a large glasshouse and in an outdoor rock garden. Of recent years it has become one of the foremost research collections in existence. To those unacquainted with its present scope and the programs of research carried on there the following account may prove of interest.

For nearly as long as the Garden has existed it has been the tradition to maintain a succulent collection. One of the most important persons connected with it in its early days was James West, a famous collector and student of succulents. Under his direction a well-designed rock garden was laid out in 1932 and planted with cacti, some of which, now grown to huge size, were moved from the Garden's previous location in the center of the campus. He also participated in the First University of California Botanical Garden Expedition to the Andes, 1935-1936, and collected most of the preserved and living cacti later shipped to Berkeley from Peru, Bolivia, Chile and Argentina. His herbarium sheets and the cacti still living in the Garden are proving of considerable research

*BERKELEY, Contribution No. 130.

value. An account of this expedition, with many references to West and his cacti, can be found in "Plant Hunters in the Andes" by Dr. T. H. Goodspeed. Director of the Garden since 1930, Dr. Goodspeed has been directly responsible for the existence of the succulent collection through the years, and its present level of expansion and activity is largely due to his support.

In 1938 Jack Whitehead, another succulent enthusiast, joined the garden staff and did much to publicize and increase the collection. He later became Manager and before leaving the Garden in 1948 wrote a number of popular articles on succulents and did some research on genera of Crassulaceae, notably *Graptopetalum* and *Dudleya*. During this period the largest single importation of succulents was that collected by Dr. Robert Rodin, then a graduate student in botany, who accompanied the University of California African Expedition, 1947-1948. Dr. Rodin, as expedition botanist, travelled thousands of miles through South Africa, South West Africa and Southern Rhodesia, gathering numerous succulents in addition to an extensive general collection of seed and herbarium specimens. A large proportion of the plants still survive at the Garden and several have since proved to be new species.

Expansion of the collection was given new impetus in 1949 with the addition to the staff of Paul C. Hutchison, a botanist whose primary interest is succulents. After modernizing the plant records and labeling methods, he proceeded to enlarge the collection along lines in which research seemed most promising. The influx of new material was soon filling the large greenhouse which had been constructed in 1947. On an expedition to Chile and Peru in 1952 he collected much seed and nearly 500 living cacti which are now being grown here; of these a good number were previously little-known or are new to science. They, as well as a number of South African plants, furnish the subjects of a current series of articles by Mr. Hutchison in the Cactus and Succulent Journal of America. In 1951 Myron Kimnach joined the staff as a specialist in the cultivation of succulents. His interest in the horticultural and botanical aspects of these plants is reflected in his past publications and in a series planned for the future. Nearly 500 species from the extensive private collections of Hutchison and Kimnach have been incorporated into the University collection.

After this short history of the collection we proceed to a description of the various units, beginning with the outdoor cactus garden. Situated on the slopes of a natural amphitheater, it is divided into beds of varying sizes and shapes, each devoted to succulents of one country. Here for example one finds the cacti of Argentina labeled and grouped together for ease of study. Some of the beds, particularly those devoted to Mexico and South Africa, are more attractive than others due to the large number of showy species of low clustering habit used to surround the larger plants. The more tropical areas, such as Brazil, the West Indies and Venezuela are poorly represented due to the tenderness of their flora. In addition plants of extremely dry areas such as the southwestern United States, the Namaqualand deserts of South Africa, and northeastern Mexico seldom survive our winter rains, although some cacti from these districts do well outdoors if grafted.

As many of the plants in the garden are new to cultivation in this country, careful records are kept as to their ability to thrive in our climate; when eventually published such information will prove invaluable to others planning outdoor succulent collections. In most years the Garden experiences but three or four degrees of frost, allowing a wide selection of species to be grown, but every decade or so temperatures of 18°F. occur and cause considerable damage.

Outstanding among the plants to be seen is the Golden Barrel Cactus (*Echinocactus grusonii*) of which many large specimens are grouped together in a mass planting, set off by colorful *Sedum rubrotinctum* and *Echeveria elegans*. Oreocerei of every size are grouped in the Bolivian and Peruvian beds; besides being

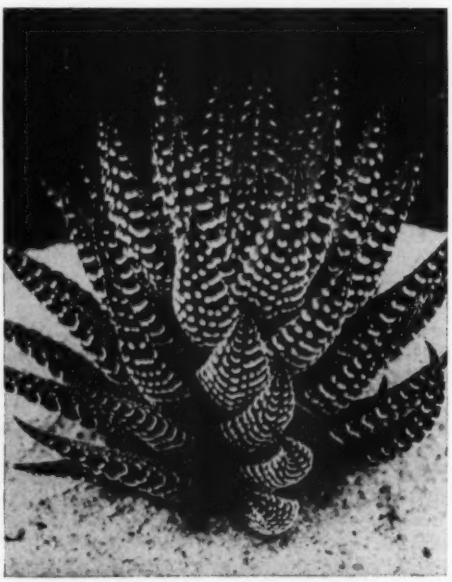

FIG. 72. *Haworthia reinwardtii* var. *chalumnensis* G. G. Smith. Its conspicuous white markings and robust growth make it one of the handsomest varieties of this easily-grown species. x 1, photo P. C. Hutchison.

attractive they have the additional virtue of hardiness. The most conspicuous cacti are the Trichocerei. Nine-foot specimens of ponderous *Trichocereus pasacana* are among the oldest cacti in the Garden, while many clumps of *T. spachianus, T. schickendantzii, T. candicans, T. strigosus, T. bridgesii* and *T. pachanoi* are covered in summer with beautiful waxy-white flowers. Others are being continually added, such as *T. chilensis, T. coquimbanus* and *T. peruvianus* from the collections of the 1951-1952 South American Expedition. On the hill-slope given over to South African succulents an extremely varied selection of Aloes and shrubby Mesembryanthema often turn the slopes into a patchwork of purple, yellow, scarlet and orange.

The indoor collection is housed under some 3000 sq. ft. of glass. The space is about equally divided between cacti and the other succulents, and being entirely a research collection the plants are arranged with regard to their botanical relationships, first by families and then by genera. All plants are labeled with a garden accession number, collector's name and number, and locality where collected. The labels are the result of four years of experimentation with a variety of label types. They are embossed aluminum painted green, the paint being buffed from the horizontal lettering for greater legibility. Each label slides into a holder made of thick galvanized steel, also painted with green enamel. For each plant there is also an accession card (4" x 6") on which additional data is kept.

The most important unit at present consists of the Chilean and Peruvian cacti collected in 1952 by Hutchison. The Chilean species represent the most complete collection in the world, as the cacti of that country have in the past been neglected by botanists and collectors. The genus

FIG. 73. *Sedum hintonii* Clausen. A seldom-seen member of the Sedastrum group, resembling a miniature *Echeveria setosa* with pale green leaves, white bristles and white flowers. Native to Mexico. x 1, photo M. Kimnach.

FIG. 74. *Anacampseros alstonii* Schönl. Plants belonging to the section Avonia of this genus are distinguished by their tiny stems being clothed with papery white stipules; the species figured is noted for its thick tuberous root and large waxy-white flowers, here seen in bud. x 1, photo P. C. Hutchison.

Copiapoa is virtually complete and includes several new species; though seldom met with in cultivation Copiapoa contains some very attractive and interesting species, particularly *C. cinerea* and *C. humilis. Neoporteria, Neochilenia, Horridocactus* and *Eriosyce* are also well represented. Of these *Neoporteria nidus, N. atrispinosa, N. nigrihorrida, Neochilenia occulta* and *N. napina* are the most interesting. Due to the extremely confused state of knowledge of these species it is anticipated that the research being done on them here will aid in clarifying their relationships. One of the secondary results of maintaining this collection is the accumulation of much horticultural experience. Information is being recorded concerning proper conditions for the cultivation of these species, which have long had a reputation for being difficult to grow.

Although the Peruvian collection is not so comprehensive, a number of little-understood species have been collected in the field by West, and more recently by Hutchison. A variety of forms of *Mila, Islaya, Haageocereus, Melocactus, Matucana, Oroya* and *Opuntia* give some idea of the variation to be found in nature among species of those genera. Collections of such variants within a population are especially valuable, for the differences between closely related species have not been clearly delineated in the literature. One of the most striking examples of such variation is in *Oroya.* Two beautiful specimens of *Oroya peruviana,* one golden-spined, the other with shorter wine-red spines, can be

seen in the Peruvian unit. At first glance they appear to be different species, but they, together with innumerable other variants in spine size, color and arrangement, grew in a single population in Peru. A group of about 20 plants of *Islaya* collected at one locality in southern Peru illustrates polymorphy in cacti even more closely, for all the "species" of *Islaya* appear to be represented in this one population.

The second most important collection of cacti consists of some 350 Mexican species, nearly all field-annotated and in pairs to show variation and to permit breeding for pure seed. *Mammillaria* is well represented, as is *Coryphantha, Thelocactus, Ariocarpus, Echinocereus, Neolloydia* and *Astrophytum*. Within this group is a small number of Lower Californian species of extra value because of their exact habitat data; these species are seldom available in the trade or in other collections, partly due to the inaccessibility of their habitat and partly to the difficulty of cultivating them. Included are *Cochemiea, Bartschella, Echinocereus, Ferocactus* and *Mammillaria.*

Recently a large number of Bolivian cacti have been published as new species and varieties by Dr. Martin Cárdenas, President of the University of Cochabamba, and a well known authority on Bolivian plants. An important collection of his living type material, as well as much of his field-collected seed, has been received here. Some very distinctive species of *Parodia, Weingartia, Cleistocactus, Corryocactus, Trichocereus, Rhipsalis, Opuntia* and *Tephrocactus* are represented.

Among the smaller specialized groups of cacti in this house are the Rebutias (29 species) of which a number are introductions new to this country. These, especially the little-known yellow-flowered species, make a colorful display during the summertime and it is planned to establish many in the outside garden, for as a general rule they are quite hardy. The same may be said of the Lobivias, some of which were collected by James West and have now formed large clumps.

Cacti of an entirely different nature are the epiphytic species which, because they love shade and a humid atmosphere and because they usually grow in trees along with bromeliads and orchids, are logically enough grown here in the adjoining Orchid House. They are suspended overhead in baskets or grown in pockets of the mossy artificial tree-trunks which are fashioned to cover the roof-support pipes. As many of these plants are poorly understood an extensive collection of them is being acquired. Among the rarer genera to be seen are *Disocactus, Epiphyllanthus, Pseudorhipsalis, Nopalxochia, Chiapasia, Eccremocactus, Wittia, Acanthorhipsalis, Rhipsalidopsis, Erythrorhipsalis, Cryptocereus* and many species of *Hylocereus, Rhipsalis, Werkleocereus, Weberocereus* and *Epiphyllum*. One of the rarest cacti in cultivation is *Strophocactus wittii,* which has flattened stems twining upward in a spiral fashion about tree trunks in its Brazilian habitat; although this species is reputed to be very difficult to keep alive, our plant has so far done well.

Fifteen species of succulent Hoyas thrive in the orchid house. Only *H. carnosa* is grown commonly in this country, but a number of others were imported by the garden in 1952 and will doubtless prove popular. Best is *H. imperialis,* a vigorous vine with fleshy 6" leaves and clusters of purple flowers which are two to three inches in diameter. Highly succulent are *H. cinnamomifolia, H. shepherdii* with shiny narrow leaves, and *H. paxtonii,* a non-vining dwarf.

The remaining succulents in the Garden are scattered through some 23 plant families. A special attempt has been made to obtain examples from as many families as possible, primarily for use as demonstration material in the University botany classes. We mention here only the most important of these families.

Among the Crassulaceae cultivated here are 48 species of *Dudleya* (including *Stylophyllum*) and *Hasseanthus;* undoubtedly the largest collection in existence, it was mostly brought together by Dr. Reid Moran, a graduate of the University, who has specialized in this group for many years. Many of these specimens have been cited by Moran in his writings on these genera. Most of the plants have been used for cytological studies also. In the future, botanists wishing to refer back to the plants cited in the papers

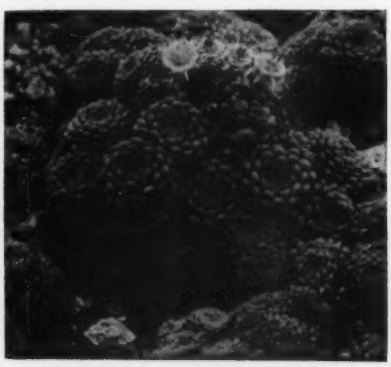

FIG. 75. *Monanthes polyphylla* Haw. An attractive native of the Canary Islands where it forms pinkish-green mats on the rocks. Though the choicest species in the genus it has not been widely grown since its first introduction to England in 1797, having proved to be rather delicate under cultivation. x 1, photo P. C. Hutchison.

FIG. 76. *Pachypodium brevicaule* Bak. One of the curiosities from Madagascar belonging to the Apocynaceae (Dog-bane family), this species is unusual in the genus in being nearly stemless. Three growing-centers can be seen on the globose body of the plant figured, each being surrounded by radiating stipular spines from earlier growth. x 1.5, photo M. Kimnach.

resultant from this research will be able to examine living specimens as well as those dried and filed in the University herbarium. Many Dudleyas have considerable horticultural value, though they are as yet little appreciated among succulent collectors. Among those which should be more widely grown are *Dudleya gatesii, D. brittonii, D. anthonyi, D. moranii, D. acuminata, D. viridicata, D. guadalupense, D. brycei* and *D. regale*. The cultivation of certain Dudleyas such as *D. cymosa* and *D. laxa* is a delicate matter, for if conditions are not right they soon waste away when taken from the field. Most of the Lower Californian species are quite tender to frost. Except for the latter, our plants are grown in an open frame the year around and do fairly well if given a summer resting period.

Another very important crassulaceous collection is some 150 different accessions of *Adromischus*. These are nearly all field-collected plants imported in the last several years from South Africa and form the most complete collection outside of that country. Only a few have been identified with older species, and obviously many are new. Some of the finest species, soon to enrich other collections, are *A. antidorcatum, A. schaeferianus, A. hoerleinianus, A. herrei, A. maculatus, A. grandiflorus, A. roaneanus* and *A. kubusensis*.

The genus *Crassula* is represented by some 75 species. The best of these belong in the highly succulent group of which *C. deceptrix* is a member. *C. arta, C. hottentotta, C. barklyi, C. columella, C. alstonii* and *C. grisea* are all well worth the attention of the collector. Other new Crassulas of great value are *C. marniereana, C. ausiensis, C. hystrix* and *C. namaquensis*.

The deciduous Cotyledons which grow during our winters are very little known in cultivation, perhaps due to misunderstanding of their growing period, but they are stately plants deserving of wider appreciation. Some of the rarer species grown here are *Cotyledon paniculata, C. wallichii, C. reticulata, C. cacalioides, C. dinteri* and several as yet unidentified species.

There are a wide variety of other plants belonging to the Crassulaceae in cultivation at the Garden, but only a few can be mentioned here as being of special interest: *Graptopetalum* (9 species): *G. filiferum, G. bartramii, G. rusbyi, G. occidentale* and *G. macdougallii*, being attractive dwarf plants of rather difficult culture; *Monanthes* (4), of which *M. polyphylla* is one of the finest of succulents; *Orostachys* (3), *Sinocrassula* (2), *Sempervivella, Rosularia* (3), and *Lenophyllum* (2). Among our 50 species of *Echeveria* are some rare and outstanding plants, including *E. humilis, E. longissima, E. craigiana, E. lurida, E. potosina* and *E. subrigida* var. *palmeri*.

Turning to the Asclepiadaceae (the Milkweed family), the most prominent group cultivated here consists of 33 species of *Ceropegia*, all of which have been imported in the last year or two. After seeing their flowers it is plain that

FIG. 77. *Dactylopsis digitata* (Ait.) N. E. Br. A rare and hard-to-grow plant of the Mesembryanthemum family, native to brackish-soil areas of western South Africa. From its bulb-like stem is annually developed several sheathing finger-like leaves and a white, stiff-petaled flower lasting a month. x 1.5, photo M. Kimnach.

collectors have been neglecting one of the most fascinating of succulent genera. While *C. sandersonii* is well known in this country and always excites those who first see it in bloom, there are a number of new introductions which are almost as spectacular. These include *C. haygarthii,* whose flower is tipped with a grotesque antenna-like structure, *C. cimiciodora* with ill-smelling many-colored flowers, *C. rendallii* with its miniature green parasols, and *C. lugardae, C. serpentina, C. crassifolia, C. smithii, C. plicata, C. ampliata* and many others. *Brachystelma,* a closely related genus, is also grown.

Because little research is being done on it the stapeliad collection is not very large, but a number of choice genera are represented, including *Pectinaria, Hoodia, Trichocaulon, Huernia, Edithcolea* and others. These are probably the most difficult to grow of any of the succulents in the collection, our foggy summers encouraging rot and lack of flowers.

Among the Aizoaceae are large collections of *Conophytum* (100 species), *Lithops* (61), *Ophthalmophyllum* (12), *Gibbaeum* (17), *Conophyllum* (7), *Dinteranthus* (5), *Argyroderma,* and assorted gems such as *Frithia, Didymaotus, Vanheerdia, Juttadinteria, Neohenricia, Monilaria, Oophytum, Muiria* and *Titanopsis.* Fortunately most of our other Mesembryanthemums are able to thrive outdoors in the rock garden the year around; these include *Nananthus, Glottiphyllum, Cheiridopsis, Hereroa, Faucaria,* as well as the more shrubby genera.

Haworthias, belonging to the Lily family,

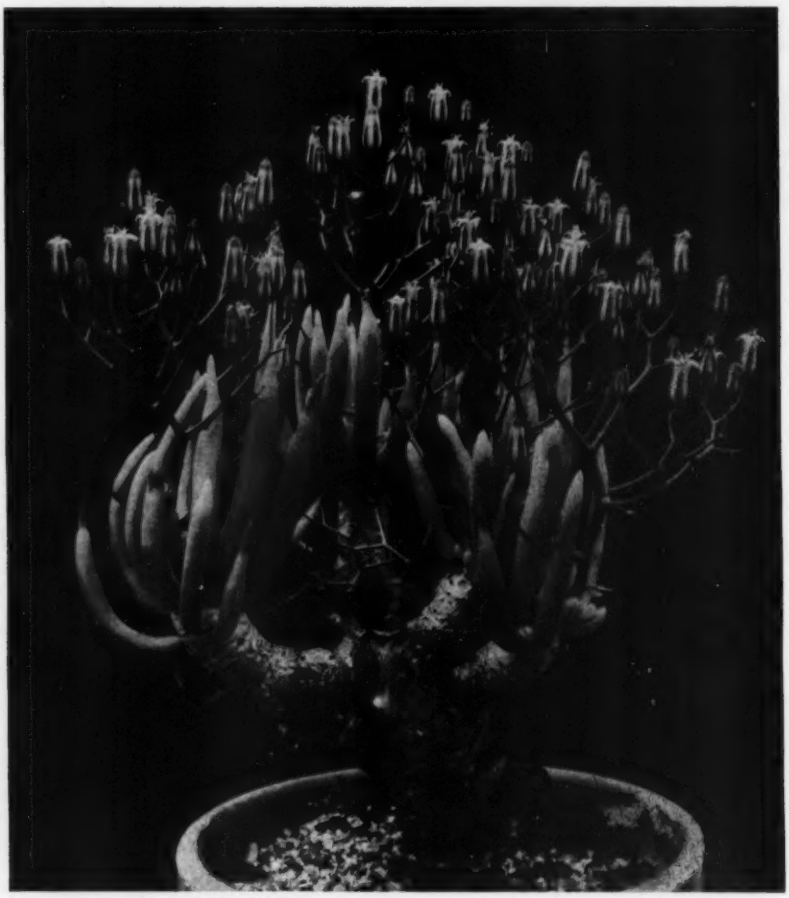

FIG. 78. *Cotyledon reticulata* Thunb. Perversely refusing to conform to our growing season, this deciduous member of the Crassula family puts out leaves during the fall, grows during winter, blooms in spring at the end of the growing season, then remains a leafless stump all summer. In its native South Africa it has been found to be poisonous to grazing livestock. x 0.75, photo P. C. Hutchison.

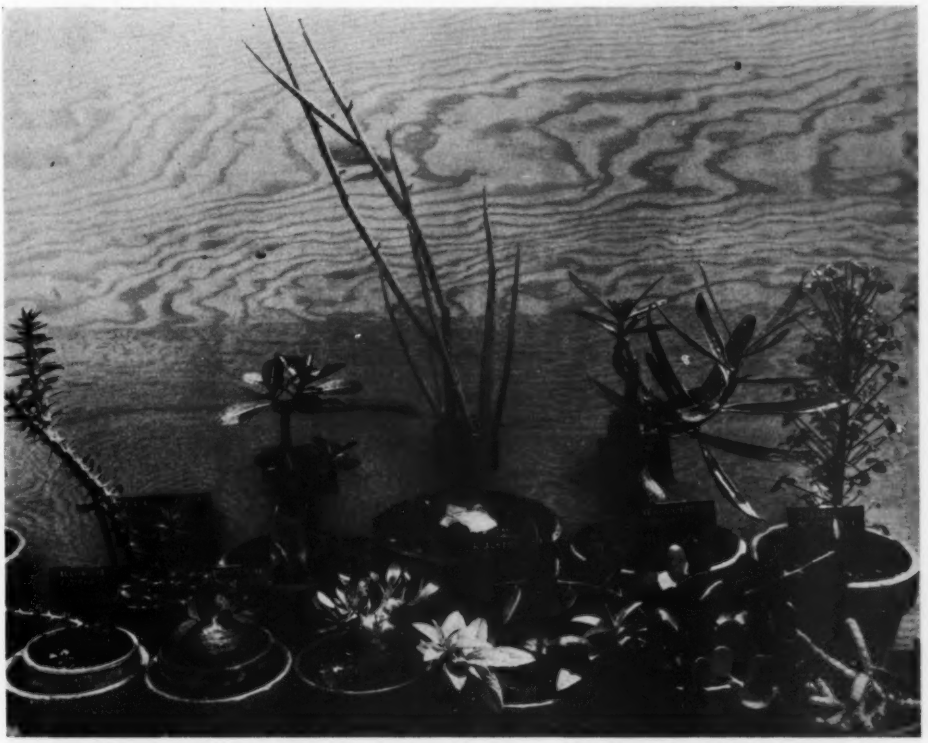

FIGURE 79. A group of recently imported rarities. Back row, left to right: *Alluaudia procera* Drake (Didiereaceae), one of the ocotillo-like members of a family endemic to Madagascar; *Adenium multiflorum* Klotzsch (Apocynaceae), South Africa, with large crimson flowers that are perhaps the loveliest of any succulent and that appear by the hundred on a mature 7-foot specimen; *Adenia pechuelii* Harms (Passifloraceae), S. W. Africa, a young plant of a species that reaches a half-ton in weight and forms fantastic block-like masses on the sides of cliffs; *Pachypodium succulentum* DC. (Apocynaceae), South Africa, a relative of *Adenium* with stipular spines and smaller flowers; *Oxalis gigantea* Barn. (Oxalidaceae), northern Chile, forming 7-foot bushes of succulent stems periodically covered with attractive yellow flowers. Front row, left to right: *Alluaudia humbertii* Choux, another species of a genus new to this country; *Pachypodium brevicaule* Bak. (see fig. 76); *Othonna euphorbioides* Hutch. (Compositae), South Africa, in its leafless, dormant state somewhat resembling a spiny Euphorbia; *Brachystelma* sp. (Asclepiadaceae), South Africa, a relative of *Ceropegia* with hirsute leaves and a tuberous root; *Xerosicyos danguyi* Humb. (Cucurbitaceae), Madagascar, one of the few succulents in the Gourd family, having tendrils, thick leaves and minute flowers; *Crassula marniereana* Huber & Jacobsen (Crassulaceae), S. W. Africa, one of the finest Crassulas yet introduced here, its sprawling stems being covered with closely-packed red-rimmed leaves, eventually terminating in a cluster of fragrant white flowers. Photo by P. C. Hutchison.

form a conspicuous part of the collection, over 250 taxa being present. While most require greenhouse protection, those with firm or leathery leaves are grown in a lathhouse bed due to their semi-hardiness. Together they form the largest public collection of this genus in the world.

One of the programs that will have the most influence on the succulent cult in this country is the introduction of novelties from Madagascar, the home of a multitude of strange and showy plants. Although only a few have heretofore been introduced, in the last two years the Garden has imported some of the most interesting, including 6 species of *Pachypodium* (Apocynaceae), 4 Alluaudias (Didiereaceae), *Xerosicyos* (Cucurbitaceae) and 15 species of dwarf Aloes which resemble Haworthias and which will probably prove just as suitable as potted plants. Other interesting Madagascar succulents are due to arrive in the near future, including relatives of *Euphorbia milii* (Crown of Thorns) with yellow floral parts or strangely swollen stems.

Another area whose extensive succulent flora is little known here is East Africa, Kenya in particular. From there a great many things of interest are being imported, including plants belonging to families not previously found in the collection. These include *Dorstenia* (Moraceae),

FIG. 80. *Ceropegia* sp. aff. *C. haygarthii* Schltr. Received from North Transvaal as *C. haygarthii*, this interesting plant differs in a number of vegetative and floral details from that species although the corona is the same in both. It may represent a new species or an extreme variation of *C. haygarthii*. x 1, photo P. C. Hutchison.

FIG. 81. *Peperomia nivalis* Miquel. This diminutive *Peperomia* is notable for its windowed leaves which, when injured or crushed, give a strong scent of anise. x 1, photo M. Kimnach.

Pyrenacantha (Icacinaceae), *Zamioculcas* (Araceae) and *Aeolanthus* (Labiatae).

A number of other families are also represented here by genera which we can only mention in passing: *Euphorbia, Peperomia, Testudinaria, Cissus, Anacampseros, Senecio, Oxalis, Sarcocaulon, Adenia* and *Adenium.*

The reader may now inquire just what kind of work is being done with these plants and what the purpose of such a collection may be. In answer it must first be explained that while the University encourages the public to visit and examine the collections, the primary purpose of these plants is for research. Thus, unlike the famous succulent collections at the Missouri, Huntington and New York Botanical Gardens, displays of large specimens or showy indoor plantings are not of primary interest to the Garden at Berkeley. Instead certain genera are gathered together because botanical knowledge of them is incomplete; as research on each group is completed the plants must then make way for the next group to be investigated.

Among these research programs in systematic botany the techniques of comparative morphology, in which the outward appearance of plant and flower is studied, are most commonly used.

Cytology is also of importance as an aid in systematics; comparing the size, shape and behavior of the chromosomes often sheds new light on species origins and relationships. Such work has been done on Garden material of Haworthias, Apicra, and Crassulaceae, and is projected for the Cactaceae. Hybridization, not for horticultural ends but to clarify the phylogeny of certain species and to record fertility mechanisms of different groups is also important and is being undertaken. Field-collected seed is sown on a large scale for studies in variation.

Cooperating in such programs with research workers elsewhere is one of the most important functions of the Garden; for example, many collections of pollen have been sent for study to a specialist on pollen morphology, and cytological materials have been supplied to several workers at other institutions.

One of the more valuable undertakings at the Garden is the formation of a permanent collection of living type material. As succulents lose most of their characteristic shape when pressed flat on a herbarium sheet, such a collection of living plants is of great value to botanists who may wish to know the exact appearance of the type specimen with which a species is associated.

At present our type material is found mainly among the Dudleyas, Haworthias, Adromischus and the Chilean cacti. The Garden is anxious to receive living isotype and topotype material from botanists publishing new species of succulents.

Although the many new plants imported here yearly are primarily intended for research, it is obvious that a large proportion are well worth being grown by amateur collectors. Due to its many contacts in foreign lands the University is uniquely able to introduce new plants. As a public service the Garden is continually turning over the choicer species either directly to nurseries who specialize in such plants, or to private collectors through the auspices of the Cactus and Succulent Society of California, which acts as a clearing-house for surplus plants from this collection.

One of our other important functions is seed distribution to botanical gardens throughout the world. Over 500 packets of cactus seed collected in 1952 in Chile and Peru have been distributed to 40 different institutions in this country and overseas. Many shipments of plants are also sent abroad yearly on an exchange basis.

As a result of maintaining such a large aggregation of plants a considerable body of horticultural knowledge is being gathered; the varied techniques of seed-raising, grafting, soil mixtures, etc., necessary in the growing of such a complex group as the succulents must be constantly revised when plants new to cultivation are encountered. The results of such experiments will one day be published as an aid to others growing these plants.

Absorbed as the staff is in all these projects, there is continual planning as to possible future expansion of the collection. Situated in the midst of one of the largest universities in the world, blessed with a nearly ideal climate and location, it is difficult not to be optimistic where the collection's future is concerned. It is hoped that more expeditions to South America and perhaps to Africa will be possible, and that the area under glass can be increased to accommodate new plants. A whole series of scientific and popular publications on succulents is in the planning stage, and some have already been published.

To assist in the further development of the succulent unit at the Garden and to support these programs of research and importations, an initial donation has been received by the University at Berkeley to set up a Research Fund. Doubtless others will wish to contribute to the Fund in appreciation of the importance to both botanical science and to horticulture of this specialized collection and the research it makes possible.

Visitors are welcome at the Botanical Garden, which is open every day in the year except Christmas. The Cactus House can be visited between 10 and 11 a.m. daily, and at other times by appointment. The Garden is situated in Strawberry Canyon, one mile east of the University Stadium.

* * *

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Hutchison, P. C. 1953c. Studies of South American Cactaceae 3. Variation in Copiapoa cinerea (Philippi) Britton & Rose. *Cact. & Succ. Jour. Amer.* 25 (3): *61, 63-72, 1953.*

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FIG. 82

CACTUS PICTURES

NO. 1 OF A SERIES

While exploring isolated areas of northern Nevada, Utah and Idaho, I found a number of extremely interesting cacti which I had never seen before and which did not fit any published description. I would like to give other folks an opportunity to express their opinions of the identity of these cacti, *before* rather than *after* an attempt is made to describe them as new species. What is this cactus? *Joints* almost globular, a little longer than wide, about 1½ inches in diameter, spineless, but with numerous glochids and an occasional bristle. *Flower* color variable from plant to plant, yellow, orange, rose. *Fruit* pale tan and dry when ripe, spineless.

EDWIN F. WIEGAND
1645 Kendall Dr.
San Bernardino, Calif.

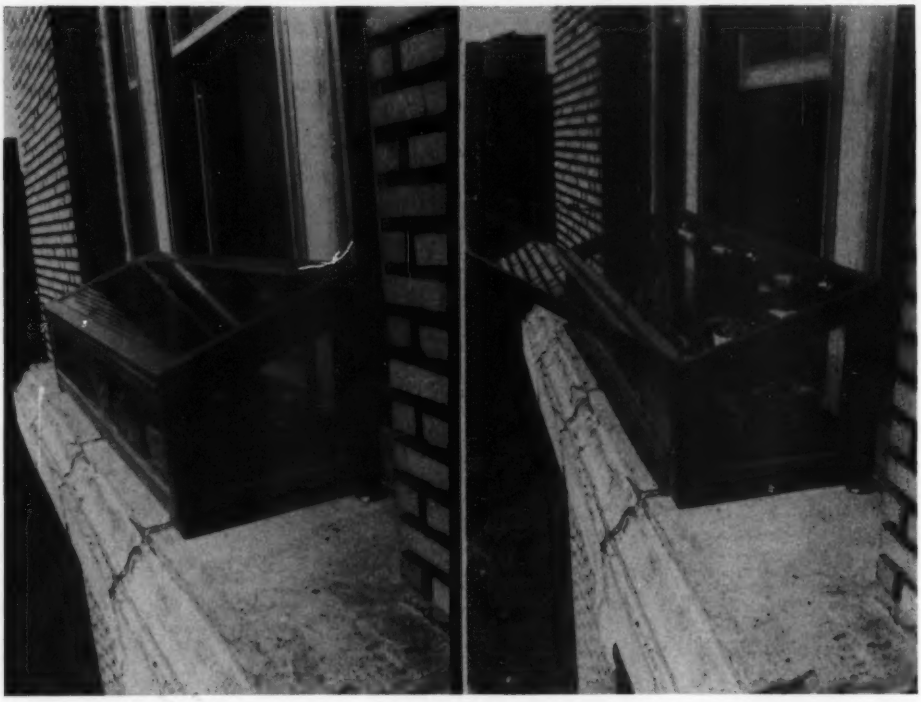


FIG. 83

CACTUS IN MANHATTAN

By PAULA PECK

What do you do if you like cactus as much as my husband and I, but live in a climate where the temperature dips far below freezing in the winter and where the dampness is considerable all year round? Furthermore, what do you do if you live in a city apartment where your only ouside space is window sills?

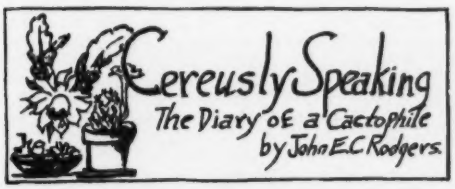
The solution is a greenhouse built by my father to fit on the window sill. It is 54 inches long, 16 inches wide and 15 inches high at the peak of the roof. Three tubular electric bulbs supply sufficient heat to ward off freezing temperatures in winter. A roof, built on a 45 degree angle like in ordinary greenhouses, brings to the plants a maximum of winter sun. A thermometer inside the greenhouse makes it possible to check on the temperature.

In summer, the roof which is hinged on with 6-inch strap hinges, is of course open so that the cacti get sun and air (our window faces west). The roof opens away from the window making the plants easily accessible. A galvanized chain prevents the roof from dropping back too far. The greenhouse is made fast with galvanized wire running between screw eyes in its frame and the frame of the apartment's window.

The entire construction of the greenhouse would take a professional carpenter about 6 hours, my father says. He took somewhat longer. First he got 40 feet of 1-by-2 lumber for the frames. Then he got 10 feet of ¾-by-8 shelving boards for the floor. He secured 40 feet of molding to line the frames which hold the glass. The glass was puttied to the frames to make it watertight. The glass used was plate glass, which is the most unbreakable.

To keep the flooring from getting soaked in heavy rainstorms, my father elevated it off the windowsill with ¾-inch parallel strips on the bottom of each side. Besides supplying the necessary heating, the three tubular electric bulbs effect an illumination which makes for a beautiful display of the plants after dark. The bulbs are inserted into sockets which are screwed into the inner, upper corners of the frame with 90-degree elbows. The bulbs are hence in a horizontal position in which they light up the greenhouse without shining into the room. The electricity is from an outlet near the window.

The greenhouse is big enough to contain about 54 small plants. My collection includes Mammillarias, Echinocacti, Opuntias and Cereii. They are potted in 3-by-12 inch cheese boxes with three or four plants in each box. For the past two seasons a number of my plants have produced blooms—especially the Old Woman, Powder Puff, Dam's Chin, Rose-thorn, Pincushion and Rose Plaid.



My potting soils are mixed and ready for those that are through blooming or do not bloom anyhow. The next larger pot, if you have room, by all means, but while the plant is dormant, the full ball of soil can be reduced and not bother the reawakening of the plant—then repot in the same pot with a layer of new soil. It is not the soil it is the new minerals that make the plant able to assimilate carbon dioxide, water and trace elements. These trace elements make it possible for the plant to absorb and synthetize carbon dioxide and water into starch, etc., for growth. A trace of lime is a necessity.

I use oblong pottery containers for community plantings of Parodias, Gymnocalyciums, Rebutias, Lobiviae, Chameocereii and Echinopsis. They do not seem to be disturbed individually by the other cacti in the same pots. I also put Sedums, Crassulas, Ceropegias, Haworthias, Faucarias in the same type of containers. Even about the large plants in large pots I put smaller surface feeding types which help to conserve space. The color combinations in community plantings of "dry types," "moist types" and "wet types" are beautiful if the types are kept separated from each other. I do not like the idea of using "drys" in with "moists." If I do do it, I usually leave the plants in the pots and surround them with sand to absorb the extra water. If the pot is not used the plants can be depotted and the ball of soil wrapped in aluminum foil or plastic wrappings, etc. The florists I've talked to seem to believe the cactus-succulent dish gardens have "run their limit." I think it is not that they have "run their limit" but that everyone thought he could buy plants, pot them in fish bowls, beer mugs, etc., set them away from light, water them once a month lightly and then glory in the "etiolated growth" as "natural growth." No one told this buyer he was breaking all the rules of nature established over 1000 centuries in the development of these plants. Too much shade or too much sunshine is injurious unless the plants are the new plastic ones I've seen in window decorations. Small succulents and cacti need light yes, but not steady sunshine.

Our spring exhibit at the Cleveland Garden Center was a success. Curious with no interest other than looking interested, ones with intelligent questions and hopeful collectors with the "itch" to get more succulents and cacti were there. At the meeting we held we had visitors who look like good prospects for membership. John Bock's blossoming cactus kodachromes from his western trip and E. J. Fish's acrerock garden, alpine kodachromes, were the highlights of our week. Since few people see cacti bloom, it is always a surprise to them to see the beautiful flowers cacti do have. Most of the viewers of our exhibit were disappointed to see so few flowers. When we tell them that not all cacti bloom for even the experienced grower, they seem better satisfied with their own results. So many have Christmas Cacti, Pin Cushion (Echinopsis), *Crassula arborea, Cereus Peruvianus,* etc., and get them to grow. Most of these favorite plants were gifts as a cutting or in a "bowl." The worry they express over the plants shows how much a "succulent" means to them. I always tell them if the plant grows and is in good health keep on with what they have been doing. Most "collectors" want names of dealers, prices, catalogues and seeds. We usually have several local dealers in our files. Our eastern growers are not as well known as our western ones. The catalogues of Harry Johnson, Paramount, California, have done more to familiarize the public with xerophytes than any other media we have found. When we have Johnson catalogues at our Garden Center meeting we keep them in hiding until after the adjournment for self-protection, otherwise there'd be no meeting. It's the same anytime. A Johnson catalogue makes anyone forget time and place.

Most of us need catalogues, names of dealers, local sources, letter writing ability, encouraging information when looking at other plants, trading stock, free cuttings and organizations to keep interest alive. If we have all of these, the cactophiles, collectors, plant owners, dealers, etc., will see that those who are interested or on the verge do have plants and know where that urge to acquire plants can be satisfied or at least partly satisfied. I've never lost the "itch" to acquire new plants, and understand my new as well as my old charges.

March to July are the months of *Flower Shows, exhibits, new growth, catalogue inspection and ordering of plants, soil mixing, repotting, "cacti and succulent" checking, "no-heat" worries, more sunshine, spring fever, replacements, weather worries, late freezes, budgeting time, notes on winter failures, budding and blooming succulents, spraying and fertilizing, new books, good drainage worries, and spring rains, checking for slugs, etc., checking for night flowers, moonlight patterns and satisfaction in new growth.*

These and many more obsrevations are mine. What are yours?

JOHN E. C. RODGERS
1229—8th Street, Lorain, Ohio.

INFORMAL TALK TO MEN'S GARDEN CLUB OF DETROIT, MICHIGAN

Some cacti and succulents can be grown as house plants by anybody, regardless of space, temperature or sunlight. What is needed most of all is plenty of drainage as these plants don't tolerate wet feet.

I keep my plants in a reconverted sleeping porch that is glazed on three sides and on the roof, seven by fourteen feet. All the heat the plants get is that which seeps in from the spare adjacent bedroom. Therefore the temperature in my greenhouse varies from time to time. On nights that are extremely cold, the temperature will register as low as twenty-five degrees in the remote places from the door where the heat enters the greenhouse. Cacti which are hardy as the flat opuntia or prickly pear are located in the coldest spots. The other succulents usually can take thirty degrees or more. In the months of March and April, the temperature around my plants will mount to about ninety degrees during the sunny days and fifty degrees during the night. This shows they will take a varied temperature.

My plants are kept out of doors from May 15 to October 15. The late date is wise to keep the plants dormant, because in this condition they winter very well. If brought in sooner, they will not keep dormant and will not have their proper rest which is necessary for a good flowering period.

My favorite plant is the old man from Mexico, *Cephalocereus senilis,* on account of its growth of long hairy spines that grow down the full length of the plant, although it seldom blooms in captivity. Then I also favor the orchid cactus. These plants like

a slightly acid soil, the mixture used for begonias suits them very well. They will bloom in filtered sunlight, as they are found growing in the crotches of trees in their native habitat, living on leaf mold found there. I have about thirty epiphyllums and twenty of them have bloomed. The flowers come in many shapes and colors. The epiphyllum, Dr. Houghton, has inner petals of dark orange with purple edges and outer petals of light orange. My collection boasts three varieties of the *Selenicereus,* a night-blooming cereus, one of which has bloomed for the last eight years. This flower is one of the most attractive flowers I have ever seen. The inner petals are white, the outer orange, and a blossom on my plant that opened the night of our August Cactus meeting was nine inches across.

Other plants that are very satisfactory are Hoyas with their half inch, five pointed, star-shaped, wax flowers, and Ceropegias called the rosary vine, with opposite succulent leaves growing on threadlike stems. The Hoyas and Ceropegias belong to the Asclepiadaceae, the milkweed family. Last summer my plants were placed on a bench in the shade of a large tree and four varieties bloomed.

Another pleasing genus of the succulent family is the Aloe. Various species are *variegata* called the partridge breast, *beguinii, nobilis, aristata,* and *striata* which was in bloom at the Spring Flower Show. The peduncle of this blossom was about thirty inches long with over 150 three-quarter inch orange flowers.

Haworthias belong to the Liliaceae family as do the Aloes. These plants grow in rosettes and are proliferous from the base and some are not more than two inches tall while others grow to as much as six inches. Leaves overlap one another somewhat like a pine cone. There are about two hundred species of the genus, the difference being in the shape of the leaves and markings. Flowers have a great similarity and are not showy. On some, the leaf faces and leaf tips are windowed so as to filter the sunlight, some have hair-like teeth while others have tubercles in either lengthwise or crosswise rows on the leaf. They may have single, double or triple keels on the back of the leaves. These plants are fascinating and interesting and make very good house plants.

A friable potting mixture should consist of one part good garden soil, one part sand, and one part well rotted leafmold with a little lime added. For Epiphyllums, use one part good garden soil, one part sand and two parts leafmold, and no lime.

Cacti and succulents are usually shipped with no soil on the roots, as rot will set in if roots are injured when moist. When receiving any plants, I always look for injuries, and if there is evidence of any, I prune the roots and dust them with sulphur. Then after placing the coarse material in the pot for drainage, put in the potting soil in which I make a hole for propagating sand to set the plant in. This procedure will keep rot at a minimum.

To start plants from seeds, the same potting soil is used. The seeds are laid on top of the soil and covered with small pebbles and kept damp until the seeds sprout.

ANTHONY BARONE
Detroit, Mich.

A CACTUS COLLECTOR IN THE ANDES

An account of a second expedition to the west coast of South America.

By HARRY JOHNSON

PART VI

At one place we crossed a small bridge with towering basaltic cliffs rising precipitously on both sides. Bromeliads of many kinds grew on the faces. Some were near *Tillandsia* while others were close to *Puya.* A small shrub with handsome, bright orange-red blossoms in spikes attracted me. It was a genus quite common in Peru, *Alonsoa,* belonging to Scrophulariaceae. This one had quite large flowers, the plant suffrutescent. Many are annuals. After collecting seeds we drove on. This was a very lovely region, green after the first rains, a typical "chaparral" association. The throat of the canyon suddenly narrowed, the cliff being pierced by a tunnel. On the opposite side we entered a quite different formation. Here at the top of the canyon was the remains of a rain-forest association. What was my delight to see a fine, large leafed Anthurium growing on the huge granite boulders under the trees. There were many orchids also but none in bloom. Within a quarter mile the forest was gone and the slopes were in cultivation or covered with second growth brush. This is one of the tragedies of tropical montane agriculture. To plant a corn crop the forest is cut down and burned to supply potash. Then for two or three years reasonably good crops are secured. Soon the fertility is wasted by erosion and the pernicious tropical weeds appear. This works well in the thinly populated regions for the forest is never all cut down, but as population increases the slopes are continuously cropped and with the forest cover gone radical climatic changes take place. What was once an adequate rainfall now becomes highly seasonal and the clouds that once hovered over the slopes are not to be seen. A mild sub-rainforest becomes semi-desert and when enough erosion has taken place becomes fit only for browsing goats. Unfortunately this progressive picture is all too common within the tropics. In Peru conservation is the most pressing problem but one of which only a handful are even dimly aware.

Driving slowly downwards the canyon narrowed and on the cliffs I found a most interesting *Echeveria* quite different from those seen in the Rimac Valley and about Huanuco. It appeared more like the Mexican species around *E. elegans* having shorter, heavier spikes with

pale red and yellow, unvarnished flowers. The blue-white, powdered rosettes were quite attractive. On the opposite canyon wall across the small plashing brook were more plants and some bright red flowers. It was a *Masdevallia* orchid, a charming species of this dainty genus. The flowers are triangular, the base split into two long tails. A quite dwarf plant the small colonies some 2 or 3 inches tall but each with several four-inch scapes. It is always thought of as a very cool-rainforest genus but here it grew in quite dry situations and lower I found it with *Borzicactus* growing above us on the lip of the road cut.

Llapa proved to be only a tiny collection of Indian huts. Just before reaching it I slipped off the narrow, dry ridge in the road and landed plunk in the middle of a mud-hole. We sent to the village for some men and boys and after much talk finally got them to push me back where the wheels could once again take hold. I distributed some ten soles, about 70c, to our helpers. At a turn in the road we discovered a lovely tall shrub with large clusters of bright blue-purple, pendent blossoms. The narrow tubes were some two inches long expanding into a flaring corolla an inch and a quarter in diameter. Truly a pleasing thing quite near *Nicotiana.* Unfortunately no seeds were ripe and the cuttings did not survive.

The vista down the valley was stupendous. Far, far below we could see the stream a thread of white margined with green. At the end it joined another river that came in from the right and entered a canyon whose walls must have been a mile in height. The mountains toward the west fell off in range after range into the hazy blue distance toward the Pacific. Instead of the road dropping toward the valley it kept to about 2000 meters rounding the spur and entering the next canyon. Far across the chasm we could see San Miguel our objective for the night. One became acutely conscious of the vast scale of the Andean chain.

At dusk we reached San Miguel. These mountain towns are baffling for the roads are so little travelled it is often difficult to find the central square or plaza. A crowd of children pointed to an almost perpendicular pile of rocks as the street leading to the plaza. By starting and stopping I slowly inched my way up it and finally arrived at the very large square. The town was built around it and such stores as there were were fronting it. There was no hotel of course but inquiry revealed a pension. A large crowd had gathered around us as we seemed to be the first English car to have journeyed here. Also we had come down off the mountain a direction from which cars just did not arrive. Touring in Peru is practically unknown. We could find nothing to eat though we were brightly directed here and there. Finally we coaxed our host to give us coffee and bread with some native white cheese. Walking through town we bought some small rolls, bananas and soda pop for next day. The inadequate electric lights about the plaza faintly glowed on their standards. Very few of the houses were equipped probably because of the uncertainty of the supply. At night the small shops are lit with a feeble candle or kerosene flare. One is always led to wonder how the smaller shops survive with their tiny stocks of native staples. The answer must be, since they live in the back, that the inadequate surplus of fruits and grains over sales constitutes their diet. Both the Peruvians and the Indians are inveterate traders and an Indian will walk twenty miles to sell a couple of eggs or a few handfuls of grain, more perhaps to visit than for the few pennies received.

In the morning we were up before dawn but before we got gasoline and our tires inflated the sun was up. It was chilly in the weak early sunlight as we slowly bounced breakfastless out of town. The road continued at about 1,800 meters to circle the spurs into the next canyon which we circumnavigated and here Dr. Vargas found a pretty new Bomarea with crimson bells. The Bomareas are Amaryllads with thick, fascicled roots from which arises a generally twining stem from 4 to 20 feet long at the end of which is a handsome bunch of lily-like, tubular bells red or pink in color. They are very characteristic of the Peruvian highlands. Near here I found an interesting low growing platyopuntia with small, bright scarlet flowers. The road, while reasonably passable, was filled with rocks which had rolled down from the slopes above. All day long we were stopping to clear a way. Toward late afternoon I spied a procumbent Borzicactus hanging over a steep bank and while scrambling up the cliff to get it saw more cacti above. After a long and dangerous climb up the crumbling rocks I at last reached them. The excitement of finding a handsome new plant leaves one breathless and surely I had reason to be so now. From a stout trunk of two or three feet arose several perpendicular arms some 2 to 3 inches in diameter and 6 to 10 feet tall. They were bright yellow the ribs and areoles being closely set each areole filled with very short, yellow, acicular spines. The top 15 or 18 inches bore a heavy, dark brown, woolly pseudocephalium. The pseudocephalium was quite like that of *Cephalocereus.* Near it grew a very distinct *Armatocereus* with rather slender branches and elongated fruit. The location where the plants were growing, a great cliff-like boss on the mountain

face, contained a remnant of the original forest which at one season of the year must have been quite wet for the plants were coated with lichens and algae. After securing specimens and some young plants, the latter bright yellow and slender with rather longer spines, we continued on. We saw more of the *Armatocereus* and leaning out from the wall several large plants of the new *Cereus*. Lower yet I found some huge plants with 30 or 40 branches and a trunk a foot in diameter. These large plants were very handsome, shining golden in the early dusk. Here also the procumbent *Borzicactus* grew upright to almost 4 feet and the areoles now had strong centrals. The blossoms were like those of the plants from above Chilete, *B. plagiostoma*. After taking what pictures we could we continued down and a short distance below came upon a large tree cereus. It was growing among a thin xerophytic scrub to a height of about 15 feet. The trunk was rather long with a few upright branches. An inspection showed it to be *Gymnanthocereus microspermus* which considerably extends its known range. Unfortunately there were neither flowers or fruits. This genus seems to be a well founded one and has no particular affinities with *Browningia* which is different in flowers, fruits and seeds. I have found three other very different species but which conform to the broad characters of the genus. Its range I hazard to guess is from Trujillo to probably southern Ecuador.

RARE CACTI IN THE GARDEN CACTI.
We have over 700 varieties of these curious and interesting plants from all parts of the world. They require absolutely no care, and will grow and bloom for months in the Parlor, Conservatory, or Garden without watering, increasing in value every year. Their large flowers (some 14 inches in diameter), are of exquisite beauty and fragrance, while their strange and grotesque forms always attract attention. Prices 10c. up to $100 each. We send, free by mail, 10 Fine Plants (our choice), each distinct and named, curious, fine, and free bloomers, for $1. 16 rarer for $2. 25, by express, $3. 4 for 50 cts. Our catalogue and Hints on Cacti, full of illustrations (a complete book), for 10 cts. Free with each order.
SEED.—1 pkt., 12 var. mix'd, 25c.
Order now, before they bloom
A. BLANC & CO.
314 N. 11th St.
PHILAD'A, PA.
Mar. '89.

FIG. 84. A commercial advertisement in Blanc's 1889 catalogue.

THE CATALOGUES OF BLANC & CO.

Little attention had been paid, around this office, to the catalogues or other publications of the old firm of cactus dealers, A. Blanc & Co. of Philadelphia, until a letter was received from Mr. G. D. Rowley of the John Innes Horticultural Institution of England. This letter is printed here.

"From the frequent references in cactus literature to Blanc's Catalogue, I had until recently assumed there to be only one publication of this name. However, it is now clear that this enterprising firm issued quite a number, of which I have been able to obtain the following:

1. HINTS ON CACTI. Undated. Grey cover. Pages 3-98. 155 cuts and 1 folding coloured plate.

2. HINTS ON CACTI. Undated. (Covers missing.) Pages 3-108. 172 cuts. Identical with 1 up to page 92 and in pps. 94-8. Page 93 contains Haworthias and Gasterias in place of Euphorbias; pps. 99-108 are new and include among other things the well-known Testudinaria plate (p. 105).

3. ILLUSTRATED CATALOGUE OF RARE CACTI. 1891. 32 pages. Pink-buff covers. 80 cuts in text and 5 on covers.

4. ILLUSTRATED CATALOGUE OF RARE CACTI. Undated. Yellow covers. 24 pages. 60 cuts in text and 6 on covers.

Undoubtedly there are other editions. From the advertisement reproduced in the Am. Cac. & Suc. Soc. J. VI (1935) p. 146 it is clear that as early as 1889 there were editions of both; others, I believe, date from 1896 and contained photographs as well as woodcuts. Unfortunately all seem equally difficult to get nowadays, and the only source—in England at least—is in the few remaining libraries of veteran col-

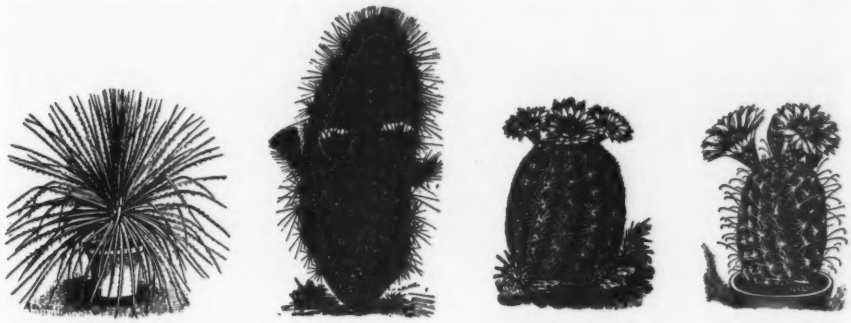


FIG. 85. All of the illustrations in Blanc's catalogues were wood-cuts which were all done by hand. Mr. Blanc was a wood engraver by trade.

lectors of the great cactus revival of the "gay nineties."

Can anyone put dates to the above, or give details of the other editions?

In a collection of over 220 old catalogues on succulents, although I have many covering the period 1890-1900, I have never had or seen one definitely dated earlier than that; hence it would be of particular interest to know if any earlier ones survive today."

G. D. ROWLEY.

* * *

The copies of the Blanc publications in Mr. Haselton's possession were dusted off and looked over and the following information was obtained.

The earliest copy found, in bluish-grey covers, is entitled Hints on Cacti on the outside cover, with the firm name A. Blanc & Co., 314 N. Eleventh Street, Philadelphia, Pa., U. S. A. On page 1 this is entitled, Catalogue and Hints on Cacti, and is dated, January 1, 1888 (2nd Edition). This catalogue consists of 68 pages with 118 woodcuts.

Next is a copy of a list, entitled, Illustrated Price List of Rare Cacti, in white covers, 24 pages including covers and dated 1889.

A list entitled, Price List of Cacti, in blue covers, 24 pages with 73 woodcuts was found. In this it is stated that, "Our *Hints on Cacti and Catalogue* (best book on Cacti ever published in the United States), profusely illustrated with large engravings, will be sent on receipt of 10 cents. A German translation of our *Hints* has been published in Europe, the price of which is $1.50. A larger and still more profusely illustrated work on Cacti will soon be published; we will call it our *New Book on Cacti,* and the price will only be 50 cents." Unfortunately the front cover is missing and no date is evident on this list. On the last page however, is this notice, "Hints on Cacti. 72 pages; price 10 cents. A new and enlarged edition realy July 1, 1890; price 15 cents." A woodcut in this is dated 1890, so that the date of this list was undoubtedly early in 1890.

The next list found is entitled, Illustrated Catalogue of Rare Cacti, 1891, 32 pages, in pinkish-buff covers. This is evidently the same as Number 3 in Mr. Rowley's communication.

The best of the lists is, Hints on Cacti, 1891, in greenish-grey covers, 116 pages (including covers) and with 187 woodcuts.

The latest list found, is entitled, Illustrated Catalogue of Rare Cacti, 1892, with yellow covers, 32 pages, 80 woodcuts.

No color plates were found in any of these lists.

Blanc's Hints on Cacti, 1891, is probably the best known and most popular of the various lists issued and this was still advertised in the Baltimore Cactus Journal of 1894.

In this Journal VIII (1936) Dec. issue, on back cover is a small advertisement of a few items for sale by a Mrs. Webster in Scotland, and among them is this interesting item, Catalogue and Hints on Cacti, published by A. Blanc & Co., Philadelphia, Penn., U. S. A., 1886. This is without much doubt the first edition of this interesting catalogue.

It would be a fine service if any readers of this who may have copies of Blanc's lists which contain photographs as well as woodcuts and dated around 1896, as mentioned by Mr. Rowley, would write in and give particulars. It would also be very interesting to know if the "New Book on Cacti," price 50 cents, was ever published by Blanc & Co.

* * *

Editor's Note: If you have additional information regarding the various editions of these historical catalogues, please report to your Editor.

FIG. 86. *Ferocactus flavovirens* near San Sebastian de la Frontera.

MORE ABOUT MEXICO

By HOWARD E. GATES

Photos by E. YALE DAWSON

To me the most interesting of all the large Cerei of Mexico, is the one originally described by Dr. Dawson as *Cephalocereus apicicephalium* and which Curt Backeberg has proposed naming *Neodawsonia apicicephalium,* a mono-typic genus. Our discoveries on this trip greatly extended the known range of this plant as we found numerous localized colonies in various portions of the Tehuantepec water shed. The flowers and fruit are borne at the very apex of the branches, deeply embedded in dense wool which completely caps the branch tips. Only the tips of the small pinkish flowers protrude and the fruit remains hidden until the swelling of maturity brings the tip and persistent perianth segments into sight. The fruits are top-shaped, smooth with a few small scales covering small tufts of axillary wool. At maturity, the tips of the fruits split open exposing black seed scattered through the white rather dry pulp. After fruiting, the branches grow on through the cephalium and the old cephaliums persist for several years as woolly rings, spaced a few inches apart. In normal locations these plants are fairly heavy columns with a few upright branches reaching to about twenty-five feet in height. They ordinarily do not flower until they are at least ten feet high.

There was one location about fifteen miles west of Tehuantepec, where the plants were greatly dwarfed and flowered at about six feet. This colony was on a very step canyon side made up of large irregular blocks of weathered limestone. Between the blocks were holes ten to fifteen feet deep, a fine place for rattlers which we did not even hear on the whole trip. The tops of the stones were weathered away to knife-like ridges which made climbing over them very slow and dangerous. If a person stumbled and fell, his knee would surely be cut to the bone. Around this colony were plants of *Cephalocereus tetetzo, Selenicereus, Nyctocereus oaxacensis* and *Pereskia conzattii.*

This *Nyctocereus* is a rather sprawling plant, somewhat heavier than our familiar *N. serpentinus* and more heavily covered with golden spines which turn to a rich brown with age. *Pereskia conzattii* grows up

to a forty foot tree which would not be recognized as a cactus by the casual traveler. It has a definite stout trunk with numerous lateral, spreading branches. Both the trunk and laterals bear plenty of needle-like sharp spines ranging to several inches in length. The weaver birds often build their pendant nests from the extreme tips of the upper branches. We were too early in the season to find the trees in leaf and flower.

I must not forget to tell of the bright green, large leafed *Euphorbia* growing in the region. Both the stems and leaves bore sharp prickles which stung like horse nettles on the slightest contact.

At the crossing of the river near *Nejapa,* we passed the type locality of Dr. Dawson's *Mammillaria nejapensis*. This globular, often clustering, white spined plant has very woolly axils in the greater part of the upper portions. The plants on this small hillside were very variable as to spine length. Some were extremely short while other plants had tortuous spines up to two and a half inches long. The variation in spination, led Dr. Dawson to describe three varieties of the species. The flower segments have brick red to scarlet centers with cream-colored margins.

On the low valley land between Tehuantepec and the port of Salina Cruz were numerous plants of *Pachycereus pecten-aboriginum*. This species seems to be all along the west coast from Guaymas in Sonora to the boundry of Guatemala. Even though it is probably the smallest of the *Pachycereus,* it is a noble plant. The usually erect branches arising from a six to ten foot trunk, often tower to a height of twenty-five feet. The very large fruits do not appear to have a true skin as the outer covering seems to be composed of areoles bearing everything from wool to long, stiff, sharp spines matted together and disintegrate after a short time. The black seeds are the largest *Cereus* seeds I know of with the exception of *Nyctocereus serpentinus*. The cut branches of *P. pecten-aboriginum* are often set closely together to form bounry fences.

At Tehuantepec, which in the past has been noted for poor accommodations, we found a large new hotel across the highway form a grove of tall cocoanut palms. In the dining-room, Tehuana Indian girls dressed in their characteristic native costumes, served the tables. The prominent feature of this dress is a square yoke which comes from near the waist over the shoulders and is repeated down the back. The broad borders of this yoke are composed of bands of various colors embroidered or woven into intricate designs. The long black hair is put up in two braids which hang down the back. Ribbons are usually braided into the hair and either trail down beyond the braids or are tied together. Sandals are sometimes worn but more frequently the women are barefooted. Fiesta dress is much more elaborate.

On the flats enroute to Salina Cruz, we found immense clusters of *Mammillaria collinsii*. These brown-spined globes freely branch laterally. The rosy flowers arise from axillary tufts of wool in the upper parts of the plants. Also here were scattered *Cephalocereus collinsii*. These are more slender and do not branch as freely as some of the others of the *Pilocereus* group such as *P. chrysacanthus* or *P. palmeri*. The flattened fruits were half buried in the lateral woolly cephaliums. On the hills surrounding the port of Salina Cruz, we found a very few of the little known *Cactus oaxacensis* but none were old enough to produce the woolly Turk's cap white cephaliums. Most of the plants were hemispherical, quite shrunken from the long dry winter. The scarcity of this species may be attributed to the Tehuanan's fondness for cactus candy. In nearly every thicket were the sprawling plants of *Acanthocereus horridus*. Their few ribs were well supplied with stout spines.

To be continued

THE BISHOP'S CAP CACTUS

By WM. MASTRANGEL, *Rocking Horse Cactus Gardens*

The barrel cactus group contain many fascinating species, and surely the Bishop's Cap cactus, *Astrophytum myriostigma* (Salm-Dyck) Lem., is one of the most interesting in this entire sub-tribe. The Bishop's Cap is one of the few cacti which is completely spineless, protecting themselves from the sun by means of minute white hairs which almost completely cover the epidermis. This dense white covering gives the plant a very pretty white-peppered appearance.

We have imported variety *nudum* from Mexico, in which these little white hair pads are almost completely absent. I have noted as many as twenty varieties and forms of this odd cactus listed throughout the world in various dealers catalogues, import lists and books. I suppose the number of forms could be endless, but there are, however, about five principle varieties recognized by most students as follows: var. *quadricostata*—the well known Pope's Cap, with four broad rounded ribs, var. *hexagona*—the six-sided Bishop's Cap having six ribs, var. *coahuilensis*—a fine variety, with fine angular ribs and generally a much taller variety than the others named, var. *tulensis*—a many ribbed variety, generally from five to as many as ten ribs, var. *potosina*—with a broad body, center depressed, five or more straight ribs, less densely covered with hair pads.

There are of course, many other forms and hybrids of the Bishop's Cap, many of which are natural hybrids with *A. ornatum*. The Bishop's Cap, like all the other barrel cacti, have a very strong rib expansion and contraction. Plenty of water expands the plant in balloon fashion and in extreme dry periods, the ribs contract like an accordion and occasionally wrinkle up.

I believe the common name of Bishop's Cap (sometimes known as Parson's Cap, Deacon's Hat and Monk's Hood), is the most appropriate of all common names—since this seems to describe the appearance of this pretty plant exactly.

Almost anyone can grow and flower the Bishop's Cap cactus. It is quite hardy and not too choosy about soil. It thrives very well in a soil composed of half coarse sand and half good garden soil, with the addition of some granulated

FIG. 87. The tall-growing form of *Astrophytum* grows to 2 ft. in height in its Mexican habitat.

charcoal. Young seedlings require a little extra care, inasmuch as they do not like being wet for long. The practice of putting about one inch of sand under the base of the young plants, will reduce losses. This will also give adequate drainage and a necessary dryness to the body of the young plant. The Bishop's Cap cactus is quite winter hardy here in the southwest, where we grow our plants under open lath and this plant seems to endure temperatures as low as 20 degrees F. After reaching the size of two inches or more, the Bishop's Cap seems to be extremely hardy. Water this desert-type cactus in the usual manner—approximately once every week or ten days, with a good winter's rest. In most localities, the Bishop's Cap requires full sun—or at least, as much sun as possible. Most desert-type cacti are sun lovers and will not flower successfully unless they do get their full share of the sun. Incidentally, this plant does just as well, either in the pot or in the garden—indoors or outdoors.

Upon reaching the approximate size of two inches in diameter, it becomes ready to flower; and the larger size of the plant, it seems, the larger and more beautiful are the flowers. A beautiful satin-like yellow is the flower color, with a reddish splash in the base—these being borne at the top of the plant. Here at our gardens, some of the plants produce a single flower and at other times, one healthy plant may have as many as seven or eight flowers at the same time. We also note that the same plant will bloom several times during the year. The blooming period here in the southwest, is generally between the month of April through September. Our Bishop's Caps seem to give us more flower-joy than any other cactus in our gardens, seems almost as if every time we look at them, one or more are generally in flower. The Bishop's Cap is not an exotic cactus, but it truly does look like one and there seems to be no other plant like it in shape and appearance. The plant is obtainable at all cactus gardens and at most nurseries. I have even seen the small seedlings for sale in dime stores occasionally and also in some of the better cactus gift boxes. Their price is within reach of everyone—ranges from ten cents to fifty dollars each, depending on size and variety. Of late, many collectors have been specializing in the Astrophytum (star cactus) group—of which there are about five or so species and dozens of varieties and forms. It is indeed, a very interesting group.

The Bishop's Cap cactus is a must in cactus collections, not only for its odd spineless form and pretty star-like shape, but also, for its ease of cultivation and flowering.

Next issue—Snow Cactus.

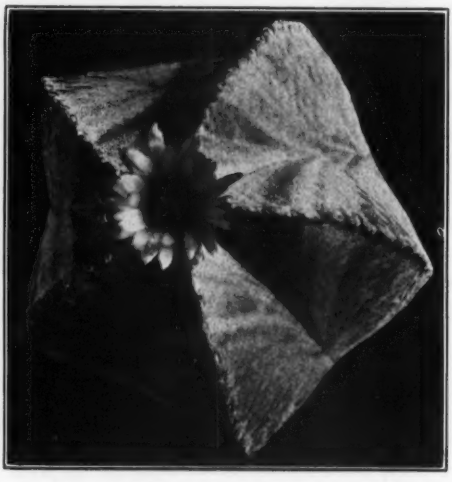


FIG. 88. *Astrophytum myriostigma* flowers as a pot grown plant.

FIG. 89

Dudleya brittonii Johansen

One of the large beautifully white farinose plants of this extensive genus. It will be noted from the mass of *Sedum pachyphyllum* in the foreground that this is a cultivated plant. It is native to Baja California in the vicinity between Descanso and Ensenada and was first collected by Howard E. Gates on one of his collecting trips. Named in honor of Dr. N. L. Britton, co-author of the genus *Dudleya*.

HIGHLIGHTS OF THE HISTORY OF THE CACTUS & SUCCULENT SOCIETY OF AMERICA

1929-1943

Early in the year 1929 a small group of people got together in Pasadena, California, and organized THE CACTUS AND SUCCULENT SOCIETY OF AMERIA. The following officers were elected: President A. D. Houghton, Secretary R. E. Willis, Treasurer Mrs. J. L. Criswell, and librarian G. A. Frick; the executive board was made up of these officers and Colonel Perrie Kewen, J. Vosberg, and F. B. Wallis.

Dr. Houghton was a learned man—not only a physician and surgeon, but a botanist and politician. He started collecting cacti and other unusual plants early in the century. Knowing that cacti were exclusively of American origin, and finding that very little had been written on the subject, he collected a large number of specimens for study and for the benefit of other scientists who were at that time writing on the subject. He traveled all over the western United States and Mexico, and accumulated a mass of material and information.

During the first meetings, Dr. Houghton urged the publication of a monthly magazine, "for the dissemination of knowledge and the recording of hitherto unpublished data, in order that the culture and study of these particular plants might attain the popularity which is justly theirs." Such a publication would promote the interest in cuttings, grafting, raising of seeds, hybridizing, exchanging material, naming and classifying of plants, cooperation with scientists, educators, research institutions, government bureaus, and quarantine officers, with a view of making available material for propagation of knowledge in our favorite field, the conservation of wild life, and finally the getting together socially of these peculiar minds that love the works of nature in her hotter and dryer moods.

Dr. Houghton said: "Members of the Cactus and Succulent Society of America, this is your magazine, you are running it. There are no stockholders; no inside ring. You must make it a success if such it is to be. It takes work; do yours."

The first magazine was published in July, 1929; the writers consisted of the officers and among others were Ernest Braunton, G. E. Barrett, Mrs. Anna Voss, and E. P. Bradbury. G. A. Frick wrote an interesting article on Euphorbias. These plants were little known at this time; but his descriptions showed that he had spent much time studying what had been written on the subject. He said that Euphorbias were named for Euphorbus, a Trojan who was physician to Jube, King of Mauritania. For several years Mr. Frick continued to write more on Euphorbias as well as other interesting subjects.

James West contributed an interesting article on "stonefaces" and continued to write for the JOURNAL throughout the years.

The first meeting of the Cactus and Succulent Society was held at the hillside home of Colonel Perrie Kewen in Highland Park, where we enjoyed seeing his collection, consisting of many rare and beautiful plants.

We visited H. M. Wegeners' place and found a small lot where every inch of space not covered by the house was occupied by Epiphyllums, Selenicereus, and Harrisias; and we realized why he had chosen these particular plants when we saw the gorgeous blossoms. Beside lecturing on his plants, Mr. Wegener exhibited them at a number of our shows.

Mr. Wright M. Pierce was one of the early contributors to the JOURNAL, and one of the first to grow cactus seedlings. R. E. Willis, who was the first secretary, named his column "The Spinal Column." E. O. Orpet introduced us to Semesan, that important fungicide that helped to make us successful growers of seedlings.

Fernando Schmoll, who has a cactus nursery in Cadereyta de Montes, Mexico, had an advertisement in the second issue of the JOURNAL, and he continued to support the JOURNAL as long as he lived. We believe this is a record.

It was decided during the first year that Britton and Rose: THE CACTACEAE, should be the official reference book for the society, and that the JOURNAL should publish only articles on cacti and other succulents. N. L. Britton, one of the authors of Britton and Rose, was voted a life membership for his work.

There were 134 entries and 63 exhibitors at the first all cactus and succulent show, which was held August 29-September 1, 1929, at Rust Nurseries, Pasadena, California; it was a financial success and was a big help in boosting the membership from 391 to 463. The exhibitors won many cups, money prizes and ribbons. G. A. Frick won sweepstakes, and W. I. Beecroft of Escondido, California, exhibited the rarest plant, *Mamillaria habniana.*

One of our first field trips was to the Huntington Botanical Gardens in San Marino, California, where our good friend, Mr. William Hertrich, curator, was our host. Among the wonderful sights he had to show us was a 20-foot *Cephalocereus senilis* (the old man cactus) in bloom. This was the first time that this plant was ever known to bloom outside of its natural habitat.

Scott Haselton of Pasadena, California, has been the editor of the CACTUS AND SUCCULENT JOURNAL from the beginning. Certainly no one person has given more effort to the advancement of the society than Mr. Haselton. He gave us the reprint of Britton and Rose, and several other books. He is the author of "Cacti for the Amateur" and editor and arranger of "Succulents for the Amateur." He also wrote a book on Epiphyllums and published and distributed many other books.

Frank Weinberg was a writer for the JOURNAL in the early days. He made a number of trips into Mexico and brought back beautiful specimens for distribution. His exhibits won a number of prizes.

Eugene R. Zeiger of Spencerport, New York, contributed to the welfare of the society by selling seeds.

Mr. Eric Walther lectured on succulent plants and wrote for the JOURNAL featuring Echeverias.

In the second year, R. E. Willis was elected president, Boyd L. Sloane secretary; and Dr. Houghton was given the degree of President Emeritus.

Many dealers advertised cactus and other succulent seeds; among these were German dealers as well as local and Mexican. This spurt of growing seedlings is the source of many a fine collection of blooming plants found in gardens today.

During the second year we made several trips to the garden of Mrs. Ysabel Wright, near Santa Barbara. This garden was perhaps the most elaborate of all the private gardens at that time. She called it a "Living Herbarium," and such it was.

The second annual cactus and Succulent show was

held at the Ambassador Auditorium in Los Angeles, May 29-June 1, 1930. This has been considered the best exhibition of its kind ever attempted. There were 250 entries and 81 exhibitors. Perhaps one reason for this success was that Charles Gibbs Adams, a well-known landscape artist, was Chairman of the show committee; later Mr. Adams became president of the society. As President Willis wrote in the JOURNAL: "words cannot describe the beauty of the show room of over 36,000 square feet of floor space filled to capacity with cactus and succulent plants, the vast majority of which were exotic, many imported from the far corners of the world, others grown from seeds." Mr. Willis' exhibition won sweepstakes; and Edgar Baxter exhibited the rarest cactus, a Cochemiea.

During 1930-31, Howard E. Gates made three trips into the wilds of Lower California, where he explored much territory that had never been visited by plantsmen before, and discovered and described many new plants. He also collected and distributed material that had not been seen for many years. Mr. Gates did considerable writing for the JOURNAL and lectured at our meetings. He was president during 1936-37, and has been an active board member throughout the life of the society.

Mr. Boyd L. Sloane, who was secretary during 1930, became president in 1931. He staged a very successful show at the Civic Auditorium in Pasadena; and the society gained in membership and national importance under his leadership. He and Mr. Alain White wrote three volumes on Stapeliad plants; later they wrote two volumes on Euphorbias. Mr. Sloane has continued to be a member of the executive board, and his knowledge and experience are valued by today's officers.

Important among the writers of 1931 were N. L. Britton, co-author of *Cactaceae,* N. E. Brown of Kew Gardens, England, whose writings were generally on African succulents, and Edgar Baxter who wrote about cacti of the southwest. Mr. Baxter also wrote a book, "California Cacti." He served as president of the society for one year and gave freely of his time editing the reprint of Britton and Rose and material for the JOURNAL.

Dr. Jacolyn Manning's "The Cactacean's Primer" was valuable in helping to promote the raising of cacti from seeds, and otherwise created interest in the subject.

During the first two years of the life of the society, Mr. Ned Lawrence wrote interesting articles about plants and collectors. His wife, Mrs. Mary Norwood Lawrence, continued writing for the JOURNAL after his death.

The affiliation of local cactus groups with the national society was started in 1931 by Mr. James West, who with his friends of the San Francisco Bay district formed the first affiliate. The South African and Great Britain societies also were formed at this time.

Mr. Curt Backeberg of Germany did a great deal of exploring and collected plants, seeds, etc., in South America. He wrote of his travels and discoveries in the JOURNAL.

During the Sloane administration, the membership of the society had a continuous growth until at the end of January, 1933, there were more than 1,000 members, with many foreign countries represented. The publication of Britton and Rose, and Mr. Sloane's Stapelieae in the JOURNAL were important highlights of 1932-1934.

There was a decided lack of interest in the 1937 and 1938 shows, and it was decided to discontinue them.

Dr. Robert Poindexter had become a well-known personality in the society. His nursery at Compton, California, was a show place of mature blooming plants as well as growing stock. Many of our meetings were held at his place.

Another grower who was an officer in the society was Robert W. Kelly. He distributed millions of cactus seedlings and pounds of seeds.

Clarence Clum, a well-known attorney, held several offices over a period of years, and was responsible for incorporating the society.

W. Taylor Marshall, who had explored much of

FIG. 90. A group of Society officers 25 years ago. Left to right: G. A. Frick, Mary Lawrence, Col. Kewen, R. E. Willis, Lee Chambers, John Vosburg, Scott Haselton, Dr. A. D. Houghton.

the cactus country, and who had written for the JOURNAL, became president in 1938 and served four years, during which time affiliate societies were formed throughout the United States. Mr. Marshall wrote "Cactaceae," the volume which brought Britton and Rose up to date at that time. He also wrote a glossary in collaboration with R. S. Woods, and many other important works. His greatest achievement was the first convention which was held at St. Louis in 1941. This convention was well attended and helped to create a national interest in our society.

Mr. Marshall is now the director of the Desert Botanical Garden in Phoenix, Arizona. For his many efforts in behalf of the cactus society, he was made President Emeritus.

Ladislaus Cutak of St. Louis has written "Spine Chats" in every issue of the JOURNAL since the first convention.

Through his many writings published in the JOURNAL during the past ten years, Mr. J. R. Brown has introduced more new plants than any other person. He has served on the executive board for several years, and for his valued services he has been made an honorary Vice-President.

Two other members who have contributed to the progress of the society, are Dr. Robert Craig, who is the author of the "Mammillaria Handbook;" and Homer Rush, who has written valuable information for the readers of the JOURNAL, and who has long been an enthusiastic worker for the society.

George Lindsey, who laid out and planted the Desert Botanical Garden, and was its curator until the war, has contributed interesting and valuable information with his pictures and lectures at our meetings.

The second convention was held at Cincinnati this year, and was attended by delegates from at least ten states. Among the important speakers were Dr. Elzada U. Clover of the University of Michigan, and Mr. B. Y. Morrison of the American Horticultural Society of Washington, D.C.

A recent meeting was held at the home and garden of Dr. and Mrs. Frank Cariss in La Canada, California, and was attended by a large crowd of enthusiastic members and visitors which showed a revived interest in our subject.

The membership of this society has continued to grow until it is now a world-wide organization. It has lived longer than any other society of its kind, and has produced eighteen bound volumes of information on cacti and other succulents.

The history of the Cactus and Succulent Society of America, Inc., is a lesson in unselfishness; hundreds of people have given their time and efforts generously, but few have derived any personal gain from it. It is truly a "Labor of love."

We are proud of our society . . . long may it live.

CARL F. BRASSFIELD, *President*, 1943

FASCINATING STORIES OF MYSTERIOUS HORTICULTURIST TOLD AT LUNCHEON

(By Susan Smith in San Francisco Examiner)

James West of San Rafael Member of Royal German Family

Guests at a luncheon the other day were discussing James West of San Rafael who, prior to World War II, was famous as a horticulturist. Fascinating were the stories, pro and con, regarding his identity. Some said they suspected him of having been a spy, while others warmly denied the charge.

Later, a friend told me that the only one who could give a correct resume of his life was Jerome Landfield. From Jerry I was able to obtain the following information, which will be of interest to all in California society who knew and liked the man who was "alias James West":

FIG. 91. James West somewhere in South America about 15 years ago.

"I first met James West at a dinner party. The hosts were Dr. and Mrs. Walter Heil. Doctor Heil had been a German aviator in the war and was now director of the de Young Memorial Museum. It was in the autumn of 1935.

"Before dinner Doctor Heil took me out to see his rock garden and explained that it was the work of James West, horticulturist and specialist in cacti and succulents. Shortly after dinner came a caller and I was introduced to James West—a small, nervous, intense man, apparently wrapped up in his specialty.

"In the course of our conversation I told him of our ranch near St. Helena and of my wife's keen interest in horticulture. I invited him to visit us and see our place.

"Time passed and he did not come. I had almost forgotten our meeting. Then one afternoon I was called to the telephone in the club. A voice said: 'This is James West. Do you remember me?' I told him that I certainly remembered meeting him at the home of Doctor Heil. 'Then I want to ask you a question,' he said. 'Do you remember entertaining a young German in 1915, at the Bohemian Club and taking him to luncheon with Mr. and Mrs. W. H. Crocker in Burlingame? . . . Do you remember his name?'

"I don't," I replied, "but if you mentioned it I might recall it.

" 'Do you remember Duke Ratibor?'

"Then it all came back to me. Instantly I replied: Yes, Duke Ratibor, Prince Hohenlohe-Schillingsfuerst.

" 'Then may I come to see you?' James West asked.

"When he appeared a quarter hour later I recognized in him the Duke Ratibor I had known twenty years before.

"Then he explained the situation. The blockade during World War I prevented him from returning to

Germany and it also prevented him from receiving funds from home. Driven by necessity he had found work in a lumber camp and naturally dropped his title and changed his name.

"Presently, having accumulated a small reserve, he made his way to Arizona. There he found employment as a gardener. He had always taken a keen interest in botany and horticulture, and his employment gave him an opportunity for reading, study and experiment. Later he returned to California and settled in San Rafael. Here he became known as an expert in horticulture and made a modest living in this field. He laid out many gardens and had rather specialized in rock gardens.

"He then told me the reason for coming to me and revealing his identity.

"Professor Goodspeed of the University of California, was about to leave on an expedition to South America seeking new plants in the Andes region, and had asked West to accompany him. West was eager to go, but at the same time wished to make sure of his return to the United States.

"To obtain a return visa he needed an affidavit from someone who had known him before and could testify to the legality of his presence in the country. Naturally I was happy to oblige him, and a few days later made the necessary affidavit at the immigration office in Oakland.

"Then I reminded him of his promise to visit our ranch. Next Saturday he drove up to our door in a rattletrap roadster.

"It happened that we had been invited to meet a group of friends for dinner that evening at a little roadside inn. I asked if I could bring our guest, James West, and found with pleasure that each couple greeted West as an old friend. For most of them he had done some special work.

"Shortly afterward West left for South America with the Goodspeed expedition. For several months occasional postcards came. Then silence.

"West had disappeared without a trace. There were rumors of his having been seen in Berlin, but nothing definite or authentic.

"Then last summer I dropped in one day on Professor Goodspeed in his camp in the Bohemian Grove at the Midsummer Encampment. Naturally I brought up the subject of James West.

"From Goodspeed I learned much of the experience he had with West on the expedition. West, it seems, did most valuable work, much of it alone and on his own initiative. But he was entirely irresponsible. He would disappear for days and then turn up unexpectedly. Finally he disappeared altogether.

"Some years later Professor Goodspeed was attending an international horticultural convention in Berlin. He recognized West in one of the front rows. Presently he made himself known and was warmly welcomed as if nothing had happened.

"Then Professor Goodspeed told West of the new expedition which he was about to make in South America. West wanted to go. The funds were furnished by the Royal Horticultural Society of London. Arrangements were made by cable to include West. Then, when the expedition sailed, there was no West.

"That was the last they heard of him. It is now reported that he has since died."

* * * *

A year later imagine my astonishment on receiving a letter from Germany from a lady who identifies this same James West as her uncle, and who writes most interestingly of the mysterious scientist.

It is this story which I would like to share with you now, particularly in the writer's own words.

My correspondent signs herself Alexandra von Dewitz, nee Grafin (Countess) Hoyos from Essen-Ruhr, and uses the letterhead of the British Center in Essen.

* * * *

"The newspaper cutting containing your column of second of April 1952 . . . gave us a big thrill," she wrote, "and furnished us with a further chapter in the life of the mysterious "Uncle from America" who illuminated our childhood and passed through our life for one brief summer in 1938.

"James West was the eldest brother of my mother and the tale of how he vanished in America during the first World War gave food for many of the adventure stories of our childhood. . .

"He must have been a very extraordinary child, with a dream-world of his own which he populated with beasts and flowers.

"In the late 1920's, about the time of his fiftieth birthday, he suddenly decided to contact his family again and I shall never forget my grandmother's tears of joy at the receipt of his first letter after fifteen years.

"He told her he had taken the name of James West during World War I and that he was very happy in Calfiornia. He explained that he would never again be able to live in the old country after the freedom of America.

"It was him we have to thank for our first authentic impressions of America; he sent Granny the National Geographic Magazine regularly and I still remember the thrill of the first color photography we had ever seen. After this there came an occasional letter or card, but suddenly in 1928, after my grandmother's death but in time for my mother's fiftieth birthday, there was a wire that he had landed in Europe and (would some day or other join the family).

* * * *

"I don't remember the exact date, but suddenly he was there: A small, wiry, weather-beaten man wearing a poncho, who was never without his mate calabash from which he sucked yerba mate through a very beautifully wrought bombilla.

"He told us about his expedition to the Andes with Professor Goodspeed. . . . He was interested in so much—but he let nothing touch him intimately. All of a sudden he would disappear again, and postcards would come from all over Germany.

"And then there was—nothing. He vanished into thin air. . . . Then, in late summer, 1939 . . . my mother was called from our estates in Silesia by her second brother's wife, Princess Moritz von Ratibor. Uncle Egon (this was James West's real name) had been found dead—drowned . . . in the Spree . . . there was no sign of violence . . . and there was a peaceful smile upon his face. . . . My mother, my aunt and myself attended a very quiet little ceremony in one of Berlin's oldest cemeteries. . . .

* * * *

"His was a personality that could not bear to be bound to anything . . . he had to be free of any ties and could bear no bonds . . . we, to whom he had been a flashing star . . . are touched to find that after fifteen years people on the other side of the hemisphere, in a country whose memory is proverbially short, still remember James West of San Rafael.

"A very patheitc coincidence is the fact that while in America he was taken by some to be a Fifth Columnist, some here in Germany believe that he found his end by the hands of some Nazi thugs, because they saw in him an American spy.

"Personally, I believe that he came to the end of his life's adventure in the spirit in which he had lived. 'There is never an end and never a beginning, only the present moment.'

. . . I wanted to thank you for still remembering one who to us was, and still is, very dear."

FIG. 92. Packing and shipping Chico cuttings to five growers in June, 1930. Represented in the photo are Wm. Hertrich, Mrs. John D. Wright, E. O. Orpet, and Ralph Hoffman.

DAVID GRIFFITHS' OPUNTIA COLLECTION

A memo from David Griffiths, dated October 15, 1930, lists Opuntias that were distributed after experiments as cattle feed had been completed at Chico, California. One hundred numbers were listed with the source of the specimen.

Dr. Griffiths terminates his list with the following:

"Unless otherwise stated, the original material was collected by myself.

"It has been 12 years since I have studied this collection. It is therefore not to be wondered at that my memory is hazy about some items. We had at one time close to 3,500 numbers in the collection in both field and greenhouse. As is evident, there are now only about 100 distinct things available. Some went out because not adapted to the natural conditions, many more were killed by the cochineal insect native to and introduced from Texas and New Mexico.

"It will be noted that no attempt has been made to name many of the items. They have never been named. It will take a great deal of study to properly place them. This it is hoped you or others to whom your collections are open can do.

"As may be readily judged from this lot of material and what has disappeared from this collection in the past 20 years, the forms, varieties, and species of Opuntia in Mexico are exceedingly numerous. They are very numerous in nature. Each locality, separated by comparatively small distance from the next, is very likely to have a quite distinct Opuntia flora. On the other hand, the small orchards of Opuntia cultivated by the poorer classes are as diverse of varieties as the apple or pear orchards in the United States.

"It is a good thing that you are maintaining a living collection for study, for that is the only way in my opinion that order can be brought out of the chaos that exists in the nomenclature of the group.

"I have always tried to grow plants from cuttings and from seed side by side. It has often been a matter of wonderment how constant and true so many of the forms come from seed."

DAVID GRIFFITHS,
Senior Horticulturist,
Dept. of Agriculture, U.S.A.

EDITOR'S NOTE: We would like to hear from any reader who may still have some of these Opuntias under Dr. Griffith's numbers.

NEW BI-GENERIC HYBRID

By T. MACDOUGALL

During the first years of its cultivation, fruit was obtained on *Pseudorhipsalis macrantha* by pollenizing with varieties of Zygocactus. Many flowers were pollenized in the course of several seasons, but, although these, almost invariably, set and matured fruit, no germination was ever obtained from the seed. Other autumn blooming species, such as *Epiphyllum anguliger* and *E. Darrahii,* did not seem to promise worthwhile hybrids and were not used as parents. Three years ago, a plant of the old "hybrid" *Ackermannii* chanced to bloom for me during November and a flower of this and one of *Pseudorhipsalis macrantha* was crossed reciprocally. Both flowers set fruit and a number of seedlings were grown from each of these.

In the fall of 1949, plants of both hybrids were flowered, those of *Pseudorhipsalis macrantha* crossed Orchid Cactus Ackermannii, in the greenhouse of Dr. H. E. Anthony in New Jersey, and those of Orchid Cactus Ackermannii crossed *Pseudorhipsalis macrantha,* in the patio of Mrs. Ruth Oberg of Oaxaca, Mexico. It is in recognition of these accomplishments by two esteemed friends that I propose to name the hybrids H. E. Anthony and Doña Rutila respectively. (See figs. 95 and 96.)

The two hybrids resemble each other, and, in many respects they are intermediate between the parents. The flowers of both are of a soft salmon pink with more or less red in the throat, particularly in those of Doña Rutila. Both retain much of the fragrance of *Pseudorhipsalis macrantha,* but the flowers are larger and longer lasting than those of *P. macrantha.* H. E. Anthony resembles *P. macrantha* in growth habit while that of Doña Rutila is more like *Ackermannii.* It is noteworthy that the hybrids appear to have inherited the flowering season of both parents—the fall blooming of *P. macrantha* and the spring blooming of Ackermannii, plus the intermittant flowering of the latter.

The following measurements of H. E. Anthony flowers will give an idea of the size as compared with that of either parent:

Total length 3¾ ins.

Width of corolla 4¼ ins.

Tube 1½ ins. long, by ¼-5/16 in. in diam.

Corolla lobes 1¾-2 ins. long by ¼-⅜ in. wide.

Ovary ⅝ in. by ⅝ in.

These first hybrids of *Pseudorhipsalis* will prove desirable additions to Orchid Cactus col-

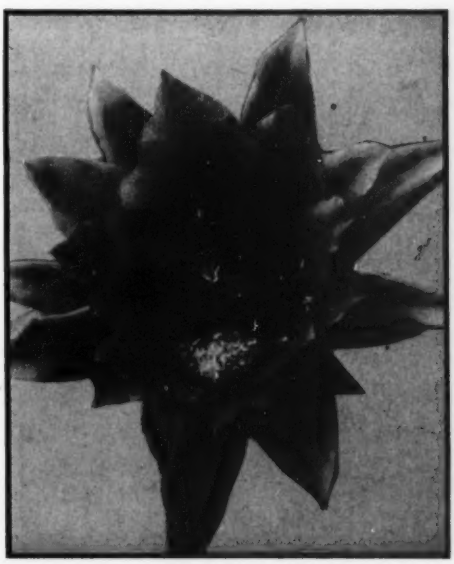


FIG. 93. Orchid Cactus Ackermannii.

FIG. 94. *Pseudorhipsalis macrantha.*

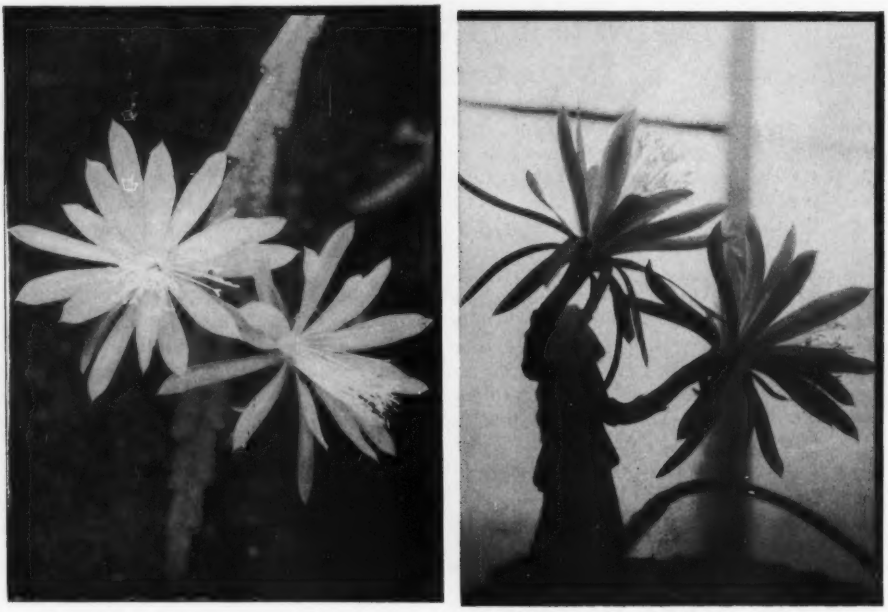


FIG. 95. H. E. Anthony—*Pseudorhipsalis macrantha* (female) x Orchid Cactus Ackermannii (male).

lections, as well as to other flower growers.

The possibilities of new variations in the progeny is still more promising. By interpollination we hope, eventually, to raise enough seedlings so that selections may be made from plants bearing a combination of the more desirable characters of both *Pseudorhipsalis macrantha* and Orchid Cactus Ackermannii.

FIG. 96. Doña Rutila—Orchid Cactus Ackermannii (female) x *Pseudorhipsalis macrantha* (male).

SPINE CHATS

LADISLAUS CUTAK

I waited six long, anxious years for the *Cryptocereus Anthonyanus* to bloom. Back in 1947 when Tom MacDougall and I tramped the wooded region surrounding Pico Carrizal in Chiapas (Mexico), we cut down a number of long branches of this 'fishbone cactus' for possible culture in the greenhouse. The plant was not exactly new to MacDougall,—he had collected it a year earlier in the same locality and distributed cuttings to various friends, hinting at that time that it appeared to be an entity not yet described. I watched, nursed and caressed my own cuttings, waiting for the great moment for the buds to make their appearance. In the spring of 1950 MacDougall anounced that a plant in the collection of Dr. H. E. Anthony was producing buds and was revealing characteristics unknown in the EPIPHYLLANAE. The ovary exhibited spines and bristles which would rightly place it in the HYLOCEREANAE instead. Because my cuttings failed to bloom earlier I was deprived of naming this most interesting cactus, the honor going to Ed Alexander of the New York Botanical Garden.

I'd like to add a few comments on this epiphytic plant. *Cryptocereus Anthonyanus* is destined to become a great favorite when its availability is assured. As yet, only a few dealers have it in stock. The cactus grows fairly fast in our Cactus House where it is found in the ground, its greatly lobed stems allowed to sprawl erect upon a trellis. It prefers filtered light, such as most Epiphyllums delight in. The original plant from which the cuttings were made produced a spreading head some twenty feet up a medium-sized tree which grew on a slope of the picturesque hill. The flowers are definitely colorful. The pointed bud early exhibits the rich madder purple color of the outer perianth segments. A portion of the short flower tube also is tinged with this identical color. Since only a very few of the innermost perianth segments are cream-colored, a fully opened flower is a glorious spectacle. The style is reminiscent of a Hylocereus and is rather thick, about 6 mm. in diameter, much contracted toward the base. For a detailed description see the November-December, 1950, CACTUS JOURNAL.

* * *

Dr. Norman H. Boke writes on the "Tubercle Development in Mammillaria Heyderi" in the April, 1953, number of the American Journal of Botany (40: 239-247). This is his fifth study on the developmental anatomy of members of the Cactaceae, and it is probable that such studies eventually may reveal information which will be of assistance in revising the systematics of the group. *Mammillaria Heyderi* as found in Jackson County, Oklahoma, is said to be easily distinguished from all other Coryphanthanae growing in the area by its flat crown, a solitary central spine on each tubercle, whitish flowers, red fruits, brown seeds, and extensive latex system. *M. Heyderi* possesses what may be called dimorphic areoles. Its shoot apex is the largest yet described for any flowering plant and the leaves are the most rudimentary ones yet reported for any cactus, while the spine areole has a radial aspect unusual among investigated members of the Cereeae. The tubercle is a much-enlarged leaf base and the usually solitary central spine is the last to be initiated.

* * *

Robert J. Rodin has an interesting paper on the "Distribution of Welwitschia Mirabilis" in the April, 1953, number of the American Journal of Botany (40: 280-285). Welwitschia, a member of the Gnetales, is one of the curiosities of the plant world, found in extremely arid deserts where at most only a few inches of rain fall each year and in some localities rain may actually not fall for several years. Welwitschia was originally discovered by Frederic Welwitsch in Angola in 1860. Although several botanists and travelers have observed the plant no investigation of the overall distribution has been made until now. A description and map are given of the localities where this curious plant has been collected in Africa.

* * *

In the April, 1953, GENTES HERBARUM, published by the Bailey Hortorium, Dr. Reid Moran presents two lengthy articles on Taxonomic Studies in the Cactaceae; the first dealing with problems in classification and nomenclature, the second with notes on Schlumbergera, Rhipsalidopsis, and allied genera. He is largely responsible for revising the Cactaceae for Hortus Third.

Search for the correct name for the Christmas Cactus has led Moran to believe that it is *Schlumbergera Bridgesii* rather than *Zygocactus truncatus*. The plant, as it appears in general cultivation in this country, is rather uniform in its characters. Its flower color ranges from pink through dark rose-red to magenta and the flowering period is from the last of November to the first of April and sometimes later. Moran offers food for thought in his varoius discussions on cactus plants, which comprise 29 pages, but most of it is, or would prove, confusing to the rank cactophile.

* * *

From books on Central America and the West Indies, we learn that the flowers of the Yucca were one of the principal vegetables of the natives: eaten both raw and cooked. Mrs. Harold T. Butts of Ormond Beach, Florida, tells about nipping off the blossoms of *Yucca aloifolia,* one by one, reaching carefully to avoid the sharp pointed leaves, then washing and placing them in the ice box to chill, finally serving them whole. Not only are they something new to serve and really delectable but she really believes they are very wholesome. Dr. David Fairchild once served a dish of Yucca blossoms which he had prepared with French dressing. Those who tasted the dish were most enthusiastic. Just for the fun I picked off blossoms of *Yucca filamentosa* and found them quite palatable. Try them someday, next time your club meets.

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CORRESPONDENT WANTED

John Stratham, Church End, Middleton, Kings Lynn, Norfolk, England, would like to correspond with people in the cactus country.

CORRECTION

In the key on Adromischus, page 44, March-April JOURNAL please correct "32. Leaves entirely terete . . . -36" to "32. Leaves entirely terete . . . 33".

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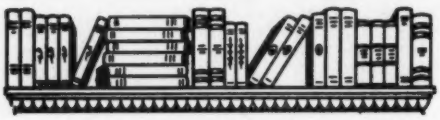

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